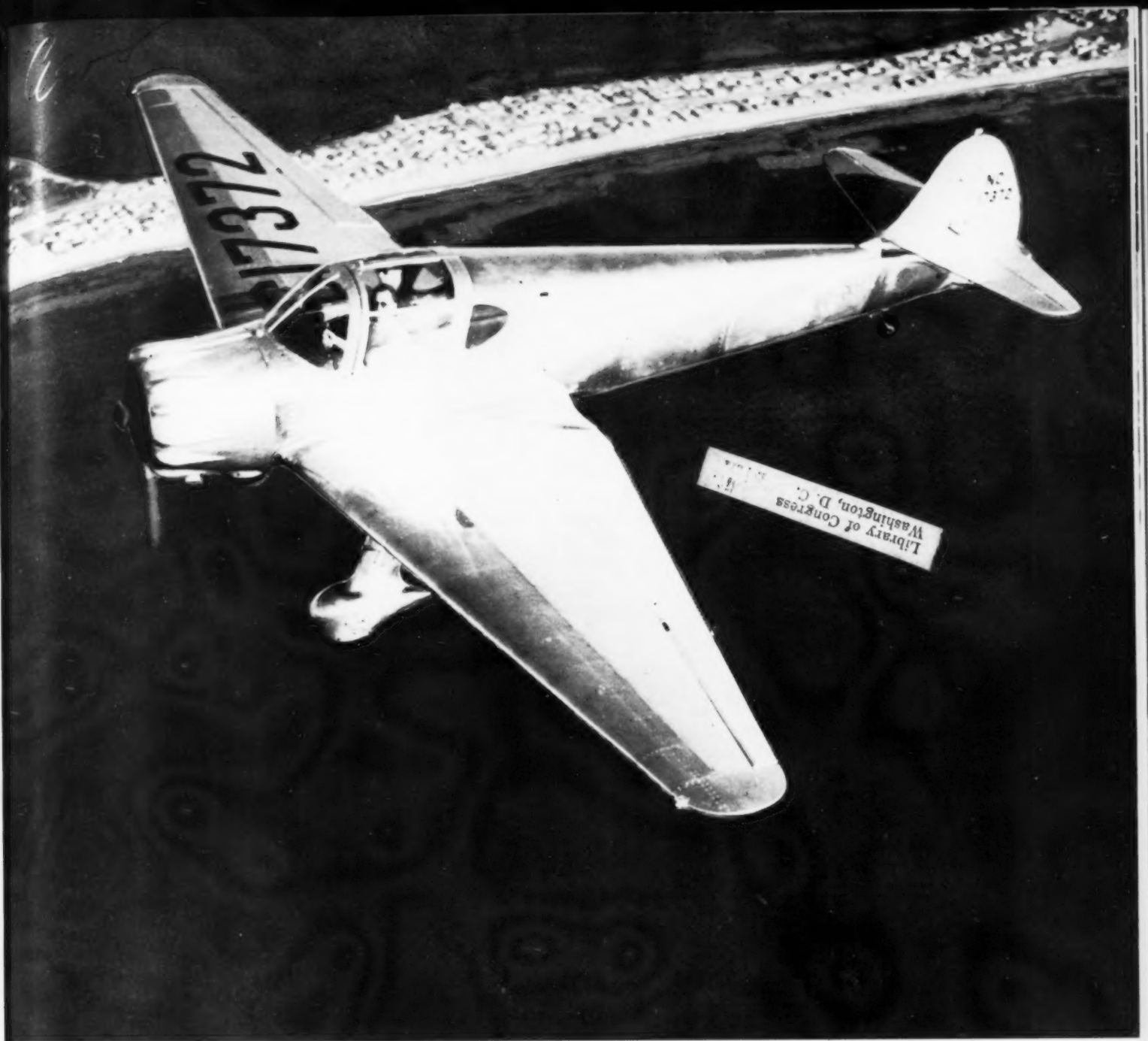

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MARCH THE RYAN S-C 3-PLACE CABIN 1938

MAR 29 1938

Southern Flight

The Birdmen's Perch

We've got a new one: Let's have cartoon ideas—any and all that may be lurking under your flying bonnets. If they are original and funny, we'll have our artist illustrate them; then we'll publish them and forward the original drawing to the contributor as a present. Like the idea? Okay . . . forward them quick, to:

MAJOR AL WILLIAMS, alias "Tattered Wing-Tips," Mgr., Gulf Aviation Dept., Gulf Aviation Products, Gulf Bldg., Pittsburgh, Pa.

AND WHAT DOES THE LEXINGTON SAY . . . ?

Dear Major: I had just left the naval station at North Island, and the Cyclone in my Curtiss Hawk was turning up nearly full gun when there was just a perceptible shudder in the plane, followed instantly by total obscurity of the windshield. After a semi-blind landing on the carrier, the mechanics had to soak the glass with water in order to remove the splotchy red-and-gray mess which contained just enough ground feathers to identify it as the mortal remains of a medium-dark sea gull. **—L. G. Domning, U.S.S. Saratoga**

REMEMBER THE CASTOR OIL DAYS?

Remember when castor oil was the *only* oil that would stand up in the engine of a crate? But remember, too, the flint-like carbon and pistons cemented tight as soon as the engine cooled?

Such an oil simply wouldn't do today.

For modern flying makes far more severe demands on oils—demands that can be met only by the very finest 100% Pennsylvania oils, refined by every bit of ingenuity available to modern science.

That's what makes Gulfpride Oil—refined by Gulf's patented Alchlor Process—the world's finest oil for planes. This process takes the finest Pennsylvania oil, *already* refined by ordinary methods, and still further refines it—removing as much as 20% *more* black sludge and waste.

HELP!

Can some reader help solve this puzzle?

In selecting a gasoline to get the most performance out of my 5 house-fly power plant, I have been injecting selected horse-flies with doses of fuel, and then clocking their time around a circular glass tube.

To avoid unwarranted ridicule, I have been testing them at night near Flyspeck, Wash., close by the railroad track. Several nights ago one of my specimens injected with Gulf Aviation Gas got out of hand before I could clap him in the race-track, and flew out into the path of the Bluebottle Flyer, crack night train.

"... out comes Miss Anchovy herself, leading a fire-drill ..."

I discovered later that at this very moment at Blowfly Junction 150 miles away, the 25-mile-an-hour night freight was switched on the same track as the 75-mile-an-hour Flyer. After these two trains had collided head-on, the remains of my buzzing guinea-pig, still smelling of Gulf Gasoline, was found in the smashed headlights. It was supposed that he had flown back and forth from headlight to head-

light, turning instantly, until the crash.

If he averaged 200 miles an hour, like the other specimens tested with Gulf, how far did the little fly fly? **—L. G. D.**

THIS MONTH'S WHOPPER

Major, two years ago I lose a good pair of pants on account of your gasoline.

These pants are a very important part of a new suit I am wearing at the time, on a hop up-state where I expect to favorably impress a certain candy cane who is at that time an inmate of Miss Aggie P. Anchovy's Select School For Young Ladies. So when I land in their yard, I am very sad indeed that I find a greasespot.

Major, I swab that spot off with Gulf Aviation Gas and what happens . . . ?

That gas hits them pants and a shudder runs through them. They wiggle out from under me, and before I can tackle 'em they've kicked me twice in the shins and are galloping off across the campus hell-bent-for-thursday, me after them. And just as they pass the dormitories, out comes Miss Anchovy herself, leading a fire-drill.

Now Major, I never am not much of a one for admiring myself in the mirror when I get up in the morning. But when that bunch of young ladies lamps me in shorts and garters and turns around, fire or no fire, and marches back in that building . . . well, I just kiss pants good-by, and take off for parts away from there.

I never do see those pants again Major, until years later. Then one stormy night my door-bell jingles. I look out, and there, kind of tattered and sheepish-looking is that old pair of pants of mine. Standing right behind them is a long pair of lady's red-flannel woolies—and bless my soul if, clustered around them aren't six of the cutest little pairs of baby pantalettes you ever did lay your eyes on.

That's *some* gasoline, Major. **—F. A. Z.**

Gulf Oil Corporation and Gulf Refining Company . . . makers of

GULF

GULF AVIATION PRODUCTS

THE CUB WAY IS THE MOST ECONOMICAL WAY TO TRAVEL!

FOR ONLY $425 DOWN YOU CAN GET A CUB AND LEARN TO FLY

One of the principal reasons for the Cub's outstanding popularity is its low operating cost. Here's a ship that's economical to fly as well as to buy. The records of Cub owners convincingly prove that the cost of maintaining and flying a Cub airplane is less than the cost of maintaining and driving a medium-priced automobile.

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Think of it—a wonderful money-saver as well as time-saver! Cub fliers report better than 25 miles to a gallon of gas and 350 miles to a quart of oil. And the initial cost is surprisingly low—the new Cub Trainer only $1270 and the new Cub Sport only $1395 F.A.F. factory.

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Every purchaser of a new Cub airplane is entitled to a free course of dual flying instruction by a Government licensed instructor. Here is a marvelous opportunity for you to get a new Cub for only $425 down and learn to fly in your own plane without paying a cent for dual instruction. See the new 1938 Cub at your dealer's and ask him for a free flight demonstration.

YOU ARE INVITED TO VISIT THE CUB PLANT!

Don't miss this opportunity to see the pioneers of mass airplane production in full operation. Visit this great airplane factory that is tuned up to turn out more Cubs in 1938 than all commercial airplanes produced by the aviation industry in 1937. We welcome you as our guests.

FREE!

Send today for full details on the free flying course, free Cub folder and name of your Cub dealer. Paste coupon on penny post card, if you wish. Piper Aircraft Corporation, 38 S Street, Lock Haven, Pa., U. S. A.

PIPER AIRCRAFT CORPORATION
38 S Street, Lock Haven, Pa., U. S. A.

Please send me full details on the free flying course, free Cub folder and name of my Cub dealer. No obligation.

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CITY_____ STATE_____

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THE WORLD'S FASTEST SELLING AIRPLANE

Southern Flight

MARCH, 1938 VOL. IX. NO. 3

The complete monthly digest of aeronautics in the South and Southwest.

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An Idea Worth Trying

DURING the past few years an enterprising pontoon manufacturer has been using to advantage, especially at aircraft trade shows, moving pictures of its equipment in operation. Other members of the industry—one light plane manufacturer in particular—also appropriated the idea for use at various fairs throughout the country. However, the use of the motion picture idea most generally has been limited to the automatic system which is an improvement over the old time "slide" system, but still lacks personal touch and appeal. The film runs its course in front of a handful of observers, who have to crowd around to get a look, then winds up and runs over again.

No doubt this practice is an effective one for specialized utility and as far as it goes. But it appears to us that movies with or without sound could be used to advantage by all phases of aviation, from the fixed-base operator who wants to sell airplanes, charter trips or student instruction, to the air line who wants to interest more people in traveling and shipping by air.

In fact the air lines have already taken up the movies. Pan American has just completed a sound and natural color film that is now being selected for distribution through theatres to a world audience estimated at 20,000,000 persons. It is a supreme achievement in the travelogue type of photography and shows on a large scale what can be done with the idea.

But for aviation clubs and companies, ordinary "home movies" could be used to illustrate flying as it is today to business men's organizations, civic clubs, women's clubs, high schools and colleges to the end that the utility, safety, economy and practicability of modern airplanes and equipment may be more firmly appreciated and recognized by thousands of people in our greatest potential markets. Pictures tell the story and people will turn out for free movies. No matter what branch of aviation you are in, the movies might be an idea worth trying. At least it's a modern method to propagandize the most modern mode of travel, concerning which the average human being still maintains an abject ignorance and prejudice.

Making Plans

A GOOD sign in any business is apparent when all the departments get together, talk over their troubles and make definite plans for progress. Although the two predominant weaknesses of aviation are the facilities to talk and to join, sans action, no doubt a great deal of permanent good may emanate from the various planning conferences that became popularized late last year.

Unless there is a central organization equipped with the power to act after important decisions and plans have been formed, any gathering on any subject ends up as so much excess escaped gas, everybody going home with a relieved feeling, perhaps, and the hope that something *might* be done.

Would it not be better to decide what can be done and who's to do the job as well as what must be done? Right now the National Aeronautic Association is the logical choice to gather up all the loose ends, the lost souls, the discriminated against and all the individuals clamoring for concerted action and collective strength. Last month we expressed on this page in no uncertain terms our renewed faith and confidence in the National Aeronautic Association; and right now, whatever regional groups might do in the way of aviation planning for future security and progress ought to be turned over to the N. A. A., together with the complete support and affiliation of those who do the planning. At present there is no other logical group, no other established organization whose setup can spin and weave the multi-colored aviation fabric into one balanced and well proportioned picture, or better serve as aviation's mouthpiece in the present state of constant flux.

The other established aviation organizations, working on their own highly specialized problems, will themselves work towards the same end and no doubt put forth strong, coordinated efforts. These auxiliaries would include the Aeronautical Chamber of Commerce, the Air Transport Association, The Private Fliers Association, the Sportsman Pilots Association and others.

With local and regional aviation groups affiliated, the revitalized National Aeronautic Association can work effectively with and for your interests. Through them your own energies would be grafted to all branches of the aviation family, providing unprecedented power in numbers as the net result, and most of all, a common ground which all of us are seeking.

Soaring Expedition

EVERY cooperation possible should be given the Soaring Society of America during their expedition to the Great Plains region of the Southwest April 10 to May 8. The group plans to base at Wichita Falls, Texas, and already a thousand dollar purse has been raised there for prize money.

Since the present world's soaring record was made over the plains region of Russia, it is believed that the unexploited thermals of America's great plains may provide the "lift" necessary to bring this important record home.

Science and the Future of Aviation

A conservative outlook on some of the aspects of flight in the near future by one of our renowned pioneer designers.

Igor I. Sikorsky

AVIATION by now is a valuable factor in national life. It is an important branch of the armed forces. A vital factor in civil transportation it is guided by several new sciences, special literature, scientific research and educational institutions, and is served by a young, but already well established industry. It is strange to remember and realize that only 30 years ago all this was not in existence. World aviation was represented by a few individual pioneers who were pushing the new art of flying ahead against considerable odds. A modern engineer would have difficulty in imagining the working handicaps of the pioneer pilot-designer of aircraft, who had to develop and build his machines with no reliable information available except the results of primitive, homemade research equipment, the study of the birds, and to a great extent the products of his imagination guided by intuition, knowing that an incorrect assumption or unfortunate guess might result in the loss of his flying machine and even of his life.

The most famous pioneer of multi-engined aircraft has lived to see his designs establish the longest transoceanic air routes in the world.

Comparing the modest performances of the early flying machine and the almost complete lack of reliable scientific data in 1908 with the present situation, we can realize the remarkable progress that has been made in the aeronautical industry and science during the short period of one generation.

In analyzing the probable future trend in the development of aviation, it appears desirable to limit the discussion to the study of three major factors, the combined effect of which will to a large extent determine the most interesting future developments. The characteristics under discussion will be speed, altitude of flight and possible size of aircraft.

The possibility of traveling at great speed is the major reason for flying. A study of this factor and its future development is, therefore, of particular interest.

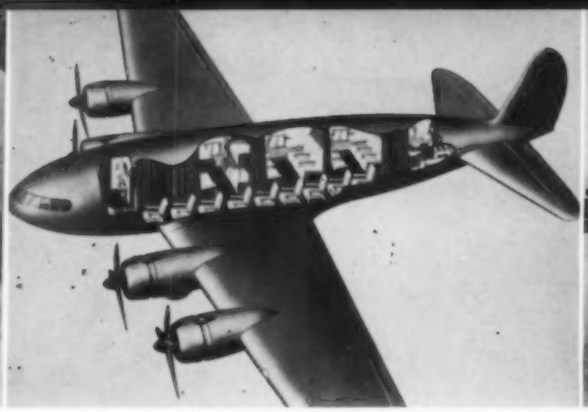
The operating speed of the latest types of modern air transport, which is about 200 miles per hour for a landplane and about 160 miles per hour for a long distance flying boat, is already very satisfactory. This speed is respectively about four times faster than the best railroad train from point to point, and six to seven times faster than the latest steamship. While this appears to be sufficient to justify travel by air, yet a further increase in operating speed must be expected, although a very high speed would be uneconomical and in many respects inconvenient. It is probable that practical considerations will limit the operating speed to a figure between 200 and 300 miles per hour during the coming decade. A certain increase in speed may be expected from operating at high altitudes. This factor will be discussed in greater detail in connection with stratosphere flying.

Altitude

THE present world record, established in 1935 by Captain O. A. Anderson and Major A. W. Stevens in a stratosphere balloon, is 72,395 ft. During this outstanding flight, which was sponsored by the National Geographic Society and the U. S. Army Air Corps, the aeronauts reached an altitude at which about 95 per cent of the mass of air was below them and only some 5 per cent of the rarefied air separated them from the mysterious depths of the interplanetary space. From this altitude they could observe and photograph the curvature of the earth. They were able to bring back a rich cargo of scientific data relating to air pressure, temperatures, electrical conductivity, cosmic rays, infra-red photography, etc.

The highest altitude reached by an airplane is 50,364 ft., which was achieved by Mario Pezzi of Italy in a Caproni plane on May 8, 1937. The practical altitude of transport flying is at the present time limited not by the characteristics of the machine as was the case a few years ago, but chiefly by the ability of the occupants to withstand the effects of the rarefied air. Therefore while most of the modern airlines could exceed 20,000 or even 25,000 ft. altitude, yet the flight operation is limited to an altitude of not over 12,000 to 15,000 ft. The normal sea level pressure is 2116 lb. per square foot. It may be safe to consider that a person of any age in reasonable health may stand without discomfort an altitude at which the pressure and density would be about two-thirds of the normal. This would be the case at an altitude of 10,500 ft. According to the condition of physical health, difficulties would begin at an altitude that would bring the pressure somewhere between two-thirds and one-half the normal. Below one-half the pressure and density, the living conditions would be hard and detrimental to nearly every human being. A pressure of one-half the normal occurs at 18,000 ft.; therefore, for flights above this altitude, air conditioning becomes definitely necessary. While physically strong people may stand this and even higher altitude by breathing oxygen, yet for general use this is not convenient and the best way would be to supercharge the cabin and to maintain conditions of satisfactory temperature, pressure, humidity and chemical content by artificial means. Therefore, for carrying passengers at high altitude, it is necessary that all these conditions be created artificially in a satisfactory and reliable way.

Power plant requirements for high altitude flying involve a series of independent, important problems. The major of them is the supercharing of the engine itself



IN THE CHRYSALIS AT THE BOEING FACTORY

Left: How Boeing's "Stratoliner" will look in flight—an artist's conception of the new thirty-three passenger substratosphere plane, now in production for Pan American Airways and TWA.

Center: First cutaway drawing of the "Stratoliner's" sealed, altitude conditioned cabin. Aft of the control room in the nose of the plane is the men's dressing room, then four spacious compartments, nine individual reclining chairs for short trip passengers, and at the rear, the women's dressing room and ship's kitchen. Four 1500 hp. Cyclones furnish the power.

Right: The new 72-passenger model 314 Pan American Clipper, largest of the world's passenger-carrying aircraft, ready for its 152-foot wings to be attached before delivery to Pan American for transoceanic service.

which means that an air compressor of adequate power must be combined with the engine and must supply air under pressure in the intake manifold so as to maintain sea level condition. After this is done it becomes possible to maintain the desirable engine power at much higher altitude as long as the supercharger will supply air under the necessary pressure. The other problem is that of cooling. While at high altitude the air is generally very cold, yet the loss of efficiency of the cooling system produced by the low density of air is much greater than the gain resulting from the low temperature. Another difficulty is connected with the gasoline supply. The low pressure outside is liable to reduce the boiling point to such an extent that rapid evaporation of the fuel may result in a heavy loss of fuel. To prevent this, it is necessary to maintain pressure in the gasoline containers, which necessitate much heavier tanks and in general is undesirable. Still another problem is connected with the propeller. It is easy to realize that the propeller that will be satisfactory in size and diameter for the operation at seal level conditions cannot be the proper one for flying in the air of considerably reduced density. According to the conditions, it is necessary to sacrifice part of the efficiency at low or at high altitude or make a compromise.

In spite of the difficulties that are outlined, the construction of a practical stratosphere aircraft is now a routine engineering problem that can be solved but it will increase the weight of the aircraft, as well as the cost and the expenses of operation. Therefore, while there is no doubt that high altitude aircraft will be built and introduced in service in the very near future, yet only practical experience will determine how large a fraction of the total air traffic will go in the stratosphere.

These requirements necessitate the development of what is called a stratosphere airliner, which is a plane with an enclosed airtight cabin properly supercharged which will permit compressing the air and maintaining reasonable internal pressure that will make the conditions comfortable for the occupants. It is generally accepted that the air pressure that would correspond to an altitude of 8,000 to 10,000 ft. is satisfactory and the problem for the designer, therefore, becomes to supercharge the cabin to such an extent so as to create such conditions. That would mean that if an aircraft were to be operated at 25,000 ft. altitude, the pressure of the air outside would be 875 lb. per sq. ft., while inside it would have to be maintained at 1572 lb. per sq. ft. These figures disclose that the problem of supercharging the cabin is not an easy one because every square foot of the cabin would have to maintain 787 lb. of pressure; therefore, any window of average size would have to withstand one or more thousand pounds, while even the minimum size door would have to withstand a pressure of 12,000 lb. The difficulty would be greater if a still higher operating altitude were to be maintained. The airtight cabin must be made very reliable because a quick loss of pressure created by a broken window or similar damage would involve serious results even at 25,000 ft. and would most probably be fatal to everyone on board at 35,000 ft. or higher.

HAVING discussed the difficulties, it appears desirable now to study briefly the advantages offered by the operation of aircraft at high altitudes. They are, mainly, a certain increase in speed and the possibility of flying above most or all of the major weather disturbances. With reference to the increase in speed, there is no general rule that could be applied to determine all cases. The table below gives the cruising performance of our S-43 Amphibian at various altitudes calculated on the basis of using a constant power of 540 bhp. from each of the two motors.

Cruising Speed (G. W. 20,000 lb.)	160	175	189	204	210	210
Altitude in Thousands of Feet	0	10	20	30	35	40

This may serve as an illustration of a particular case. In other cases, the variation of speed may be greater or smaller according to the characteristics of the aircraft.

Still more attractive is the other advantage, namely, the possibility to fly always in clear air above thunder storms, fogs, ice formations, etc. While bad weather in general is no longer a source of danger, yet the operation in the always clear and reasonably smooth upper atmosphere would add to the comfort and to the accuracy of schedule which is very important. With these advantages and the possibility of approaching and eventually exceeding speeds of 300 miles per hour, without the use of excessive engine power, a real service test of high altitude airline operation is very desirable and can be expected in the near future.

Besides its application for air transport, high altitude flying in itself presents substantial interest from a military and scientific standpoint and it appears proper to discuss briefly what can be achieved in this direction. There is no doubt that present altitude records will be substantially exceeded with the further progress in the design of aircraft and its power plant. The evidence on hand, however, appears to indicate that somewhere between 75,000 and 100,000 ft. may be the limit of altitude which most probably will not be exceeded by an airplane driven by an internal combustion engine and

propeller. The reason for this is briefly as follows.

An airplane with cabin superchargers and all necessary equipment can hardly be produced so as to have economic speed of less than 50 miles per hour at sea level. Even this speed would necessitate very lightwing loading and therefore proportionately large wings. Taking the extreme figure of 100,000 ft., we find that the density of the air is about one hundred times less than at sea level which means that it would be necessary to fly ten times faster or about 500 miles per hour to stay in the air at this altitude. This speed is too high for the efficient operation of the wings. Besides, the operation of a propeller with any satisfactory efficiency cannot be expected if such considerable difference in density is experienced. Therefore, it is probable that an altitude of 75,000 to 90,000 ft. and a speed of from 500 to 600 miles per hour will not be exceeded until a new source of energy giving greater power per unit of weight, combined with a new method of propulsion, becomes available.

Size of Aircraft

EXACTLY 25 years ago, in March, 1913, the writer was finishing the Sikrosky S-21, the first four-engined airplane, which had a gross weight of four and a half tons and an enclosed cabin for eight passengers. At that time the plane was much larger than any other in existence and was usually considered as too heavy to be able to fly or at least to be practical. The S-21 was completed and during the spring and summer of 1913 it made many successful flights demonstrating for the first time the advantages of the large size and multiple power plant. In February of the following year, the S-22 another four-engined airplane with a gross weight of 5 tons, took off with 15 passengers on board, establishing a world record which remained unsurpassed for several years. Since then these figures have been considerably exceeded and at the present time there are several successful airplanes from five to ten times larger and heavier than the modest four and a half to five ton machines that were mentioned. In line with this, it appears interesting to make a brief study with reference to the largest possible size and weight of future aircraft.

Not long ago there was a great difference of opinion on this subject and many well informed observers in aeronautics, as well as in the field of science in general, expressed the opinion that with the increase in size, airplanes would lose load carrying efficiency and finally would even be unable to fly. In line with this, it was mentioned that nature could only produce birds of a limited weight and when the ostrich exceeded a certain weight it proved too heavy to fly. While this illustrates the case, a scientific and at first glance indisputable explanation was furnished by the so-called law of squares and cubes, which means that when an object is proportionately enlarged the surface will increase as the square, while the volume and therefore the weight as the cube of linear dimensions. This would mean that the structural weight would increase quicker than the ability of the aircraft to carry load because the latter one depends on the wing area. The limitations in possible size estimated on the basis of this rule were, however, time and time again exceeded and the larger airplanes, contrary to predictions, proved to be the more efficient ones.

The general situation in this respect can be briefly explained as follows. The law of squares and cubes would really condemn a heavy airplane if the latter were to represent a true enlarged copy of a small machine, which as a general rule would be the wrong way to design it. If, however, the plane is correctly studied and the advantages of the large size are properly utilized, it is possible to obtain greater transport efficiency in the larger plane. In a simple language this would mean that if ten tons of payload would have to be transported 3000 miles, one single airplane would do it faster with the same amount of fuel or would require less fuel for the same speed compared to what would be the case if ten smaller planes carrying one ton each would be used.

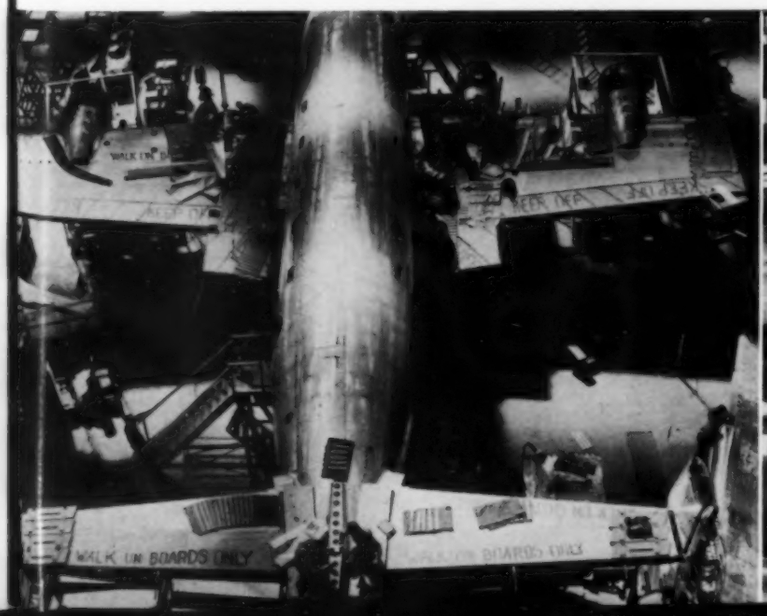
In general I believe that the limit in the size of aircraft in the future will be dictated not by engineering possibilities, but by economical factors and traffic requirements. Travel by air is essentially a fast method of communication which requires frequent departures in order to be really useful. It is not unreasonable if a passenger or a letter would wait three days for a departure of a steamer which then would take about one week to cross the Atlantic. If a passenger or a letter were to wait for three days and cross the ocean in 18 hours in a plane, the long waiting would defeat or at least considerably reduce the value of air service. To make the latter efficient and valuable, daily departures across the

(Continued on Page 14)

OUT OF THE COCOON AT DOUGLAS

Left: The DC-4 goes through the final assembly paces in the world's largest airplane hangar. With a predicted top speed of 240 mph and a cruising range of 2200 miles, the giant four engined Douglas will soon be ready for test flights.

Right: An idea of the size of the DC-4 may be gained from this photo of the massive center section. The cabin will accommodate 42 passengers for day operations, 30 berths for night trips, a crew of 5 and baggage compartments for 3½ tons of cargo.



I Discover Floats

A Louisiana operator takes a light plane out on pontoons for an enjoyable cruise through the swamps and bayous of the Gulf Coast Country, only to sell his plane before the trip is completed.

Bob Wight

THE first reaction people usually have when they see a small, lightplane on floats is one of a doubting Thomas. "Will it *actually* get off the water?" they ask. "Will it *fly* with that heavy looking gear?"

When on land or on a "dolly" the floats look so huge in comparison to the conventional wheel gear, that some of us in this business would also feel the same way were it not for the fact we know they *will* fly, are licensed to fly by a rigid Department of Commerce, and do well at it. But, frankly, as long as I've been around the lakes, rivers, inlets, bays, swamps, lagoons and Gulf Coast of Southern Louisiana, I must confess I did not know how exceptionally well the "flivvers" took to the air from off the water until I installed a pair of floats on my little Piper "Cub" and set out for a startling educational trip.

I had heard many fine reports from other sections of the country regarding performance of the conventional lightplanes on pontoons. In fact, I had to my credit more sea time than land time but most of it had been on larger amphibians or straight seaplanes with an occasional large float job thrown in; so naturally I felt no uneasiness about the "Cub" although my first day out was mighty rough. It was over Lake Pontchartrain and the first take-off was nothing to brag about. However, I learned a lot from that, my first take-off, and after a number of them and considerable air work, I was ready for the rating. Immediately I began taking students up. With a heavy student I found some difficulty in getting off as rapidly as I desired so I started experimenting to find the best method and how it could be negotiated in the shortest time on slick water with no wind.

It was soon evident that the proper method was the one we used to get "Commodore" flying boats off when heavily loaded; that procedure was to roll the stabilizer to normal flying postion and after opening the throttle wide open, to haul back hard and then rock gently and ease it down a bit. By repeating this a few times it would lift up on to the "step" and not sink back draggingly. Once up on the "step" it was held there with firm hold, the nose high in flying position and in a few split seconds it would fly itself off.

From a survey of the country I planned to visit, requiring short space take-offs in the bayous probably under cross wind conditions, I fully realized that it was necessary to develop the best and quickest take-off technique possible. After the third day of trials from Lake Pontchartrain with the idea pretty well in mind and in hand, I took-off for Biloxi and Pascagoula. Incidentally, the Coast Guard at these two towns and at Lake Charles were most helpful in furnishing ground tackle, gas and every possible assistance. I spent three highly pleasant days along the Gulf demonstrating the ship and flying passengers.

My most important and significant reaction to the first experience with this ship on floats was the complete freedom from any concern over safety of self or ship. Usually when flying cross-country, especially over this section where there's so much swamp land and water, the mental strain is of no mean consequence when one begins to hazard guesses as to what might happen if a forced landing is necessary. On floats, one is always over a safe and inviting airport. Instead of flying at an altitude that means a safe long glide to a field that might be in the vicinity, one can fly along over the water at relatively low altitudes and really begin to see the country.

After my first expedition I installed conventional wheel gear for a week and was then glad to return to floats for another voyage. The change over only takes a few hours and is simple, requiring no expert knowledge or training.

MY second trip was for sales and I went south over the Mississippi River and down past the eastern edge of Lake Salvador. It's a beautiful sight from the air to see the many islands, bayous and lakes stretching way off out of sight. My first stop was at Barrataria in a canal about as wide as my wing tips. My prospects were gone so I flew on to the western edge of Lake Salvador and spotted a nice shell beach where I landed to determine the swimming possibilities. From there I flew on west over the Intercoastal Waterway to Montegut. I had a letter from a prospect there but again failed to locate my man so dropped in on Houma, alighting in the canal alongside the airport. The Texas Company maintains a base here, using "ducks" for drilling operations out in the Gulf.

From Houma my itinerary took me west. Because I had been fooling around so much and whimsically stopping here and there, I decided to visit Patterson for gas. I landed alongside a fishing wharf, taxied up and stepped off onto a low plank. Maneuvering this ship on the water is as easy as handling a boat, because the large water rudder on the left float hooked to the regular rudder is so effective that quick turns across and down wind are as simple as steering a small, fast motorboat.

There was a gas station within fifty feet of my "dock." With five gallons of gas and a bite to eat, off again, this time to look over a new dredging operation west of Patterson and a trip via the Intercoastal to Sweet Lake, where I landed and taxied up to the oil rigs for another interesting excursion. Darkness was coming on and the wind was fresh, so I hastened on to Lake Charles, landing at the city docks. From the map I thought there might be a ramp there but I found nothing other than an open roadstead. I tied up to a stake and went ashore for a chat with the Coast Guard patrol boat skipper, who kindly loaned me an anchor and heavy line. I placed them, along with a small skiff, off shore where the "Cub" could swing freely.

Following a heavy rain the next day a stiff norther moved in on us. I was on the windward side of a boat house and it hit while I was eating, away from the sound of the wind. When I stepped outside I knew something was going to happen and went to the dock to figure out a way to get to the "Cub" for it was doing the

The Author and His Edo Equipped "Cub" on the Louisiana Gulf Coast

"Big Apple" on the end of that anchor line! A light skiff was out of the question. Thence to the Coast Guard, my ever reliable good Samaritans, who tried to get out to the "Cub" in a small power boat. But the wind was so strong it was impossible to keep the head into the sea and make steerage way, and we had to give up. By this time it was near midnight and the wind was blowing such a gale it was painful to face. There was nothing else to do but turn in and hope for the best.

Early next day a survey showed the "Cub" still riding the waves, bobbing up and down like a happy mallard duck as if nothing had happened. That sight dispelled my last doubt as to the practicability of lightplanes on floats; for I knew full well that no wind could ever blow up and give me trouble if she rode out the gale the night before. All one needs is a good anchor, plenty of line tied to a bridle at the front float struts, and plenty of room to swing.

The next few days were busy ones. Everybody wanted to ride so I barnstormed off a shell beach near the main road, keeping busy from daylight to dark hauling passengers. Later in the week a prospect developed and in a few minutes after meeting a sale was consummated. With about 45 minutes of instruction, spending all of the time on take-offs, the new owner soloed. Having flown land jobs and being a "natural" anyway, it was easy for him to get the hang of it. Now he has a house boat, a speed boat and a private ramp out on a little island in the middle of Lake Charles, with the reliable little "Cub" available at all times for many pleasant hours the year 'round.

THE float job is the answer for one who desires to incorporate flying with other sports without a huge investment. Fishing grounds are just around the corner. The beautiful southland coast country is your airport and worries are over. One of the true and surprising facts about the "Cub" is its appreciably faster performance on floats than on wheels. I was surprised to find this true, although both the Piper and Edo officials made the statement to me. Another very important factor is the change in flying characteristics. On floats the turns are smooth, right in the "groove" so to speak, just like a big cabin job. The float equipped lightplane handles similarly to a ship weighing around 4500 pounds and seems to be many times smoother.

I certainly regretted selling my "Cub" but my airplane sales work carries me up through the northern part of the state and into scores of airports where a wheel job is essential. If pleasure flying were the sole consideration, I would remain on floats entirely since the majority of towns, cities and metropolitan areas are on lakes, coasts, bays or rivers.

There is no question but that to enjoy a maximum of flying pleasure or to create new incomes, the float job is the answer. Wherever you "sit down" people want to ride, and many of them can't be induced to ride a landing gear job. They can easily see, even in case of the first flight, that they are always over a natural airport. To many individuals, even in this day and age when motor failures are as rare as the dodo bird, the hazard is firmly implanted in their minds and means an accident to them. For that reason, floats make an ideal set-up for the fellow on a crowded airport who wants to get out and increase his revenue from passenger hopping.

Some individuals object to a float job because of alleged high cost of maintenance; but with all modern planes coming off the production lines completely metalized there's no longer the bugaboo of rust. The problem is eliminated. The floats are anodized and painted, and the cables are of stainless steel. In all the time I had my "Cub" on the water, the floats never took on water and finally I gave up wasting time inspecting them. That was another lesson I learned. The modern floats are fool proof.

The only landing facilities needed for a fixed-base are two poles laid down into the water, sloping about ten to one on to the shore. Across these poles, slats about two inches thick can be laid about six inches apart, except at the extreme top where a solid platform is needed for turning.

The operation of coming in is simple. All one does

(Continued on Page 14)

Top: Spartan's original hangar which recent business has made inadequate, necessitating the purchase of the former TWA hangar, shown below. Over 40,000 square feet of floor space is provided in the new quarters.

Spartan Expands

WITH the largest enrollment in the history of the school and with the inauguration of night classes and a Latin-American Division, making necessary increased space, the Spartan School of Aeronautics announces acquisition of the former TWA hangar, located adjacent to the present Spartan Hangar No. 1.

In making this announcement Jess D. Green, School Director and General Manager, advised that this building will give Spartan over 40,000 square feet of additional machine shops, assembly plant, parachute rooms, large student assembly room and a lounge for visiting pilots.

This hangar is a duplicate of the present Spartan main hangar No. 1 which houses the school offices, radio classfloor space, to be devoted to new advanced class rooms, school stock rooms, radio, sheet metal, and advanced engine shops. There will be increased space for enlarged rooms and approved repair station, both buildings being of fireproof construction of steel and masonry with large all-metal sliding doors at both ends of the main hangar building and all-metal sliding doors dividing engine and paint shops from main hangar building and also opening along outer side walls for easy removal and entrance of planes to these shops.

Atop Spartan Hangar No. 2 will be located the new completely equipped airport type meterology department for student study and actual weather forecasting.

These hangars, two of the most modern of their type in the United States are located on the Tulsa Municipal Airport along with the other Spartan school buildings which include a large restaurant, two dormitories capable of furnishing rooms for over two hundred students and other buildings housing the primary class rooms in engine, mechanical drawing, blue printing, instruments, mechanics, welding and sheet metal work.

In addition to the complete housing facilities, the School maintains its own 240 acre private airport, approximately five miles from the Municipal Field.

New School for Florida

John Forney Rudy

WHAT promises to be one of the most unique and up-to-date aviation schools in the southland will make its formal opening February 15th, near Orlando, in Central Florida.

Cannon-Mills Aircraft, Inc., was founded by Wilson L. Mills, a former aviation instructor at Rollins College, Winter Park, Florida; and by J. W. Cannon, III, a grandson of J. W. Cannon, 1st, known as the world's largest towel manufacturer. Both men have had extensive experience in aviation work, Mills being the holder of the world's distance record for lightplanes.

The new school will be affiliated closely with Rollins College, accommodating and training Rollins students who wish to major in aviation. Other students will be able to enroll for courses every thirty days, and barracks will be provided so that students may live at the school.

Courses will be offered for both landplane and seaplane instruction, together with parachute training, ground mechanics, aircraft construction, and the regular courses of study generally offered by approved aviation schools.

The nearly completed airport, operated in connection with the school, is situated about three miles from Orlando, on the shores of Lake Barton. The runways on the new field are all over 3500 feet long, the longest being 4000 feet east and west. The field is connected direct with the seaplane base on the lake by a special ramp.

At the present time, the new school has fifteen landplanes and one new seaplane available for instruction. The seaplane is a Taylorcraft, while the landplanes are different models of Rearwins and Cubs. The company will also act as dealers for these types of planes, besides maintaining fuel and repair services.

In the near future a reception hall, tennis courts, and an enlarged repair shop complete with all facilities for aircraft repair, will be constructed.

The total investment will represent nearly $75,000.

The Taylorcraft seaplane, Cub sport trainer and new office building of Cannon-Mills Aircraft, Inc., new aviation school established in February near Orlando, Florida. Wilson Mills and Morris Glassburger are shown on the Taylorcraft's Edo floats. The new Piper Cub (center) is shown in front of the Company's new hangar on the improved airport. The new office building (right) is a part of the $75,000 investment in physical properties for the new enterprise.

Keeping Up

From the brass section in the air lines' orchestration of "How To Win Enemies And Influence The Post Office Department" an ironical note spills out. Eddie Rickenbacker finally succeeded in gaining control of Eastern Air Lines, saving it "for the gang that made it." And it was one of his competitors, Delta Air Lines, who did the "saving" and made it possible for Eddie to gain control. Here's how: Eastern was up for sale, because North American Aviation (General Motors) had to get out of either the aircraft manufacturing business or the air transport business, even though their manufacturing enterprises were strictly military, and they chose to keep the latter for very self-evident, profitable reasons. John Hertz and his partners in Lehman Brothers (who control TWA) offered $3,250,000 in cash and notes for Eastern. The offer was turned down, first because Rickenbacker was being given a chance to raise the necessary funds. Kuhn, Leob & Company together with Smith, Barney & Company became interested; but they would not meet Rickenbacker's demands for complete operating control. When all seemed lost for Rickenbacker, Delta Air Lines telephoned him they had $2,000,000 in cash for his plans. Armed with this unexpected offer, Eddie again stormed his two New York investment houses, who capitulated to his original terms and put up the $3,500,000 cash necessary to swing the deal.

Oklahoma's "Uncle Jim" Brazell

From the woodwind section of the same orchestration comes a turbulent mass of discordant notes over the new air mail routes soon to be advertised, although such foul notes developed that Second Assistant Postmaster General Harlee Branch conveniently took off for a Caribbean cruise to relieve his ear drums and get away from all the hell that was being raised, particularly by proponents of the Tampa-Memphis route. Despite the logical routing from Tampa via Tallahasse, Montgomery and Birmingham to Memphis, public convenience and necessity doesn't have a show; and collusion, which the present air mail law is supposed to cure, is quite the order of the day. The New Deal knows they had better watch out in Alabama, or they'll get their britches torn. That state is threatening complete pull out. So the advertising of the bids has been delayed, and the fireworks continue to fly over Dixie.

The largest display of aircraft ever held on the Pacific Coast will open at Los Angeles' Pan-Pacific Auditorium, April 2, when brothers Cliff and Phil Henderson show the amateur promotors how the job is done . . . and we understand the recent California flood has receded, the "sun is shining" once again and that 142 exhibitors will be on hand with their wares. From past performances, we advise not to miss the Pacific Show.

The grand old man of aviation in the Southwest is Oklahoma City's James E. (Uncle Jim) Brazell, who holds a transport license and flys his own ship for business and pleasure. Last month his seventieth birthday was celebrated by a small group of southwestern airmen who connived with Mrs. Brazell to take Uncle Jim to a picture show while they gathered at his home to surprise him. Surprise it was and a wonderful tribute to a great character. Best shot of the evening's festivities: the entire gang lined up in front of the telephone hello-ing BAC inspector A. M. Alcorn, formerly of Oklahoma, now of California, whose presence was sorely missed . . . incidentally, the gang chipped in and paid for the call. . . . and speaking of beloved southwestern airmen, none enjoyed more esteem of his fellow men than P. F. (Pop) Hotchkiss, who went over the horizon early this month, after a flying career replete with brilliant success and devoted service in commercial aviation . . . it was only last year that Pop outsold every airplane broker in the nation as far as the domestic trade was concerned . . . and as badly as we need such men at this stage, it's Pop himself we'll miss, his warm handshake and smile, his picturesque personality and incomparable homespun humor that made this great Texan beloved by all who knew him.

Senator Pat McCarran is getting writer's cramp revising his air carrier bill to suit the President's whims . . . now he is working on an Aviation Authority clause that already has us guessing as to who will fill the five positions, if, as and when the bill gets through the Congress . . . in the meantime we will sit back and observe with interest what kind of timber feels the call to serve and begins pulling strings for a job that probably will be as newdealish as a postmaster's appointment.

Don't think for a minute the new Civil Air Regulations fail to pack a wallop . . . we know of three business men who own fifteen thousand dollar airplanes that plan to sell them and quit flying . . . they are men of independent mind whose outstanding traits are caution and safety when they take to the air for business and sport . . . and all three of them have spent days digesting the CAR in an attempt to live up to the law . . . only to discover that it's wiser to pull out than attempt the impossible because they know the utility of their machines has been cut beyond the point where it's good business to keep them . . . under such pressure, revision must come, and come quickly.

A great many folk make the assumption that America is far behind in Diesel engine development, when the truth of the matter is that some mighty fine Diesel aircraft engines comparable to highly touted European designs are now actually performing on the test stands in the United States, waiting for the market to open up . . . and when the Army, the Navy, or even commercial aviation are willing to buy, they can do so . . . let not the penurious Government too severly score American aircraft engines of all types that sorely lack the generous appropriations of other nations who fully realize the present need for strength in the air.

Steadham Acker is priming up for his Annual Air Carnival in June and chief aide Earle Wheeler advises us it's to be a stem-winding record-breaker from all appearances . . . more and more it becomes a national and international affair instead of a local show . . . last year five foreign countries were represented . . . one of the high-lights this year will be a big delegation from Mexico . . . what better method could we use to foster international good will, particularly with our Latin American cousins, than through the medium of aviation? Steadham will tell you there's none better than an aerial get-together and we're inclined to agree with him.

Those of you interested in the status of instrument landing systems should get a copy of W. E. Jackson's report on same, published by the Bureau of Air Commerce . . . Jackson, as you know, is chief of the Radio Development Section and one of the most brilliant minds at work on the fascinating subject of aircraft radio.

The Equitable Life Insurance Company comes forth with the cancellation of all extra premiums on licensed airmen, adding definite proof that licensed flying is no more dangerous than other forms of transportation . . . and as far as accident insurance is concerned, both personal and property, just take a peek at the sweeping reductions recently made by progressive Aero Insurance Underwriters. We are gathering some figures anent this subject and will publish them in an early issue.

We don't mess with the stock market, save for following the rise and fall of aircraft stocks. If you are "in" or want to get a reputable financial house's ideas on the aviation industry, have your local broker produce a copy of Poor's Industry and Investment Surveys, Aviation Industry A-3 . . . we could find a lot of fault with some empirical statements they make which are false and misleading but on the whole their dissection is well done, their figures and tables accurate.

OUR FIGHTING FORCES

By Tom Ashley

Significant Flight

IN the wake of the record flight of six "Flying Fortresses" from Langley Field, Virginia, to Buenos Aires, Argentina, there were significant results other than the praise voiced by high government and army officials, including the president and the army's chief of staff.

It marked one of the most outstanding accomplishments of the still-young General Headquarters Air Force. By coincidence it ended on February 27, just two days short of the third anniversary date of the Air Force, which was organized on March 1, 1935.

"A striking demonstration of the speed and mobility of air power," was the way the flight was looked upon by Major General Oscar Westover, chief of the Air Corps, while Major General Frank M. Andrews, commanding general of the Air Force, said the accomplishment proved the value of "combat teams" in operations, pointing out that because of "team" training, any Flying Fortress in the Air Force could duplicate the feat.

General Andrews is a firm believer in long-range aircraft, which means huge bombers. In his holiday message he pointed out hat the present day "Flying Fortress" will be the forerunning of bombers of larger size. Praise for the flight may be interpreted as praise for the huge model bomber, which would add to General Andrews' score in his contention that bigger and better planes are what the army needs. The same praise may attract new support for the big plane idea in the army's general staff, which is in the process of considering the features of tomorrow's army airplanes.

In addition to the possibilities of winning new support for "bigger and better" airplanes, the flight may win Distinguished Service Crosses for the 49 officers and men who participated. These awards were suggested by two senators.

Of much significance is the possible effect the flight had on the rich South American airplane market. Foreign competition, from such countries as Italy, and Germany, has threatened American sales there. It was observed that there may have been more than coincidence which prompted the "Good Will" role played by the six army bombers on the occasion of the inauguration of Argentina's new president. The planes were American-made Boeings and their engines were American-made Wright Cyclones—American equipment believed to be unsurpassed anywhere for efficiency and endurance. Thus the nations over which they flew were able to view in their own domain the actual military demonstration of American "quality." Wide publicity and praise for the accomplishment carried with it praise and acclaim for the equipment. Increased sales of American aircraft and accessories in South America would be a significant result of the flight.

As for records, there was no "official" timing, except by the army. From Miami to Colon is approximately 1,100 miles. Six hours and fourteen minutes was the time for the hop. But they didn't stop there. They flew into Lima, Peru, a distance from Miami of 2,695 miles, negotiated nonstop in 15 hours and 32 minutes. Over the equator speed was slowed by storms, which sent the planes up to 23,000 feet. This leg of the trip was the most important; others were shorter and over land. It was the longest sustained mass flight ever made by the Army, the second the Army has made to Buenos Aires. The first was from San Antonio, Texas, in 1927, in which five Loening amphibians participated.

* * *

Annual Maneuvers Next

All three wings of the Air Force will be concentrated in the New York area during the month of May for annual tactical maneuvers. Dates and details have not been announced.

Preparations for the combat exercises included extensive drills in Florida by the Second Wing of Langley Field, Va. Two hundred officers, 1,000 men and 125 airplanes took part in the tactical workout, held March 12-31.

* * *

Students See Combat Tests

One important Air Corps event held annually was conducted recently at Barksdale Field, Shreveport, La., when the Air Corps Tactical School transferred classes from Maxwell Field, Ala., to the Louisiana post to witness a "combat laboratory" in which the newest tactics in bombing, attack and pursuit were demonstrated. Units from all three Air Force wings took part. A squadron of four-engined Boeings from Langley Field, Va., demonstrated bombardment with bombs ranging in size from 100-pounders to 2,000-pounders, using an outline of a battleship as their target. Bombing in salvo was demonstrated by a squadron of Douglas two-engined bombers from the First Wing, Hamilton Field, Calif. Barksdale Field's Third Wing conducted exhibitions of pursuit gunnery on ground targets resembling enemy bombardment planes in flight, and demonstrated ground-strafing—with machine gun fire and bombs, including missles wafted to earth beneath miniature parachutes—by squadrons of Northrop A-17-A attack planes.

Scores were withheld but officers attending the Tactical School were conducted on a tour of inspection of the ranges after each event.

* * *

Changes in Command

Brig.-Gen. Arnold Norman Krogstad, former commandant of the Advanced Flying School at Kelly Field, San Antonio, Texas, assumed command on March 1 of the Second Wing at Langley Field, Va., succeeding Brig.-Gen. Gerald C. Brant, transferred to command of the Air Corps Technical Schools at Chanute Field, Rantoul, Ill., and Denver, Colo., with the rank of colonel. Colonel Frank D. Lackland, chief of the Field Service Section at the Air Corps Materiel Division at Wright Field, Dayton, Ohio, succeeded Gen. Krogstad as commandant at Kelly Field.

Official photo U. S. Army Air Corps.

OFFICERS AND MEN OF THE ARMY AIR CORPS ROUND TRIP FLIGHT TO BUENOS AIRES

Top Row (left to right): Pvt. Archie R. Jester, Pvt. Joseph H. Walsh, Staff Sgt. Everett Kirkpatrick, Sgt. Jack A. Franske, Tech. Sgt. Gilbert W. Olson, Tech. Sgt. Besola Cobb, Staff Sgt. James J. Boutty, Pfc. Norbert D. Flinn, Tech. Sgt. Adolph Cattarius, Pfc. Donald F. Lowney, Corp. William Sands, Sgt. Geo. R. Charlton, Pvt. George Snyder, Pfc. John W. Yankowsky, Pfc. Harold L. Nycum.

Second Row: 2nd Lt. James H. Rothrock, A. C. R., 1st Lt. Nicholas E. Powel, A. C., 1st Lt. Richard S. Freeman, A. C., 1st Lt. William A. Matheny, A. C., Capt. Darr H. Alkire, A. C., Capt. Ivan M Palmer, A. C., Major Edwin R. McReynolds, A. C., Major Harold L. George, A. C., Major Vincent J. Meloy, A. C., Major Caleb V. Haynes, A. C., Capt. Archibald Y. Smith, A. C., Capt. Robt. B. Williams, A. C., Capt. Cornelius W. Cousland, 1st Lieut. Curtis E. LeMay, A. C., 1st Lieut. Edwin L. Tucker, A. C., 1st Lt. David R. Gibbs, A. C.

Bottom Row: Pvt. Frederick W. Woitineck, Corp. Clarence D. Lake, and Lt. Joseph B. Stanley, A. C., 1st Lieut. Ralph E. Koon, A. C., 1st Lieut. Ford J. Lauer, A. C., 1st Lieut. John A. Samford, A. C., 1st Lieut. Gerald E. Williams, A. C., Capt. Neil B. Harding, A. C., 1st Lieut. Frederic E. Glantzberg, A. C., 1st Lieut. Thomas L. Mosley, A. C., 1st Lieut. Torgilis G. Wold, A. C., Pfc. Russell E. Junior, A. C., Staff. Sgt. Henry P. Hansen, Pvt. Kenneth E. Trout, Staff Sgt. Henry L. West, Sgt. Clarence D. Hayduke.

'Attack Bombers' Sought

The Air Corps Materiel Division at Wright Field, Dayton, Ohio, has invited bids on two-engined attack bombers in quantities of 1 to 500. Bids will be opened in 1939.

* * *

Army Planes Saved by Autos

FORCED off their course by severe storms and their fuel supplies dangerously low, 18 new planes of the First Pursuit Group of Selfridge Field, Mich., were guided to safety and emergency landings by automobile headlights.

It was a dramatic episode in which two policemen, a radio station and hundreds of citizens—a goodly portion of the population of Huntsville, Alabama—took part.

The planes, in command of Captain D. M. Allison, were en route from Selfridge Field to Tampa, Florida, to take part in maneuvers of the Second Wing. After taking off from Maxwell Field, Alabama, they encountered heavy storms and selected Birmingham for refuge. There, however, they found another storm blocking their escape. Radio contact was ruined by static. The only course open lay north, with gas supplies running shorter by the minute as the combat planes bucked strong winds.

A brilliant electric arrow atop a hotel marked the town of Huntsville, drawing to its glow the storm-driven squadron. There was no lighted airport, however. While the planes circled overhead, two policemen sensed trouble and an appeal was broadcast over a local radio station asking motorists to drive their automobiles onto the unlighted airfield. Within a few minutes hundreds of cars lined the airport, their headlights bathing the area in light. One by one the storm-tossed planes came in—safely guided by the automobiles. The last plane whipped around in the wind but remained upright.

On the ground the pilots learned they had narrowly escaped tornadoes which had dealt death and destruction.

In the Air

Lieutenant-General Friedrich von Boetticher, German military attache, visited several Air Corps stations on a recent automobile trip from Mexico to Washington, D. C. Among his stops was an overnight visit at Barksdale Field, Shreveport, La., where he was the guest of Brig.-Gen. Frederick L. Martin, commanding general of the Third Wing. . . . Pilots and crew members of the Second Bombardment Group carry their ground transportation with them in the "Flying Fortresses." They use tiny motor scooters (single-seaters) for getting about the airdrome when on cross country. . . . Sec. Lieut. D'Ross Ellis, Air Reserve, was presented the Distinguished Flying Cross at Randolph Field by Major General Herbert J. Brees, commanding general of the 8th Corps Area. He landed a damaged plane during a flight from Hensley Field, Dallas, Texas, to Oklahoma City, Okla., after the pilot, Lieut. Robert S. Fisher, had fallen to his death. . . . Germany's new Heinkel fighter is said to have a top speed of about 340 mph. It is a single-engined, single-seater carrying a variety of guns and bombs. . . . Sec. Lieut. J. H. Williamson, formerly of Maxwell Field's "Men on the Flying Trapeze," joined Delta Air Lines on March 15 as its twenty-second pilot. He returned to the United States in December after serving as a flying instructor at China's central aviation school. American state department officials forced him to leave China after the Japanese aggression opened. . . . The Air Corps News Letter tells of Major L. C. Mallory, commanding officer of the 73rd Attack Squadron at March Field, downing five geese with his low-flying airplane. Here's how: One found its way into the oil radiator—and stayed there; one shattered the left landing light and passing light, crumpling the wing in that vicinity; the third smashed into the right oleo leg; the fourth struck the cover of the main gas strainer and the fifth struck the leading edge of the right wing, crushing the skin back for six inches. A sixth bird in the formation got away. . . .

I DISCOVER FLOATS

(Continued from Page 9)

is taxi up on the ramp until the keels are well on the platform, then with the motor dead, get out and lift and turn the ship around by its wing tip until it faces the water. When you're ready to go again simply warm up and taxi right down into the water. There's nothing to it. It requires no special knowledge and is simpler than it sounds on paper.

You can have a lot of fun playing around on the water and enlighten yourself on the ship's reactions to certain operations of the rudder. It is possible to sail it like a boat by putting the broadside of the fuselage against the wind for the "sail," and crabbing along shore in and among obstructions. Trolling for fish from the cabin is easy and two people can stand on one float and fish without causing even a moderate tilt. Each float alone displaces the entire total weight of the ship so that the two have a safety factor of 100 per cent. This characteristic, together with the fact that each float is bulkheaded into sections, makes them safer than any boat.

In winds of near gale force, or winds that prohibit land taxiing, on water one only has to taxi against the blow in a crabwise fashion until off-shore from the point he desires to beach, then drift back and step on shore from the tail of the pontoon. Another maneuver of importance is to turn down wind with enough power to make the centrifugal force of the turn equal the wind strength so that the ship remains approximately level at all times. On turns back into the wind or in "weathercocking," the power is off.

Get out your maps and notice that there's "water, water everywhere." With the present day reliability of aircraft engines, overland passages with seaplanes are daily occurrences, as witness the two recent flights made by the Consolidated flying boat "Guba" from coast to coast. The Navy has made many cross country flights in seaplanes. I well remember seeing one over Kansas on its way to the coast. Not long ago a "Cub" was landed on a rough field near New York City with no damage to the float gear, demonstrating the extreme abuse the floats will take when necessary.

For more pleasure from your flying, or more revenue for your efforts, get out on the water first and then into the air. Discover floats for yourself!

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SCIENCE AND THE FUTURE OF AVIATION

(Continued from Page 7)

oceans and still more frequent schedules across the continent are necessary.

Another factor that will influence the size of the aircraft is the extreme operating efficiency of the airplane for carrying passengers. If, for instance, we compare a transoceanic steamer carrying 2500 passengers with airliners carrying 100, we may at first think that 25 planes are needed to do the service of one steamer. Actually, however, the steamer will make one trip during a week, while the planes would make at least five trips each; therefore, five airliners carrying only 100 passengers each could replace a large steamer. It appears then that the speed and efficiency of the airliner as a passenger carrier would place a practical limitation on the size long before the engineering possibilities would be exhausted.

This being the case, it does not seem necessary to renew the old argument about the technical limitations of the size of the aircraft of the future. I personally believe that flying boats of 500 or even 1000 tons, carrying several thousand passengers could be successfully designed and built. I believe, however, that for reasons that were discussed above, a larger number of ships of 100 to 250 tons with frequent departures will render better service and will remain the backbone of the intercontinental flying fleet during the next 25 years. The land transports will probably remain substantially below this tonnage because the size of airports, difficulties connected with the use of too big landing gears and finally general advantages of frequent schedules will place a limitation on the practical size of land transports, probably between 50 and 100 tons for the coming quarter of century.

The 100-ton transoceanic flying boat is, however, the prospect of the immediate future. Within a few years we will travel to Europe on such ships that will cross the Atlantic in less than 20 hours. The flight will be luxurious and pleasant. There will be some 50 comfortable staterooms, a large dining salon that will be used for dancing or games in the evening, promenade decks, smoking lounges, a library, comfortable living quarters for the crew and in general most of the accommodations and luxury items found on board a first-class yacht, except only the swimming pool.

The design of such ships would include many novel engineering problems. The manual power of the pilot would be inadequate to operate the control surfaces of the 10,000-hp. flying ship. Therefore, the controls would have to be mechanically operated. Powerful engines, as well as a large amount of various auxiliary mechanisms would be usually located inside the huge wings in special engine rooms under the supervision of mechanics. There would be a supercharging plant, an electric power plant, a heating plant to maintain comfortable temperatures while the ship is cooled by the 200 to 250 mile per hour wind while flying at -60 F in the substratosphere. There would be a long list of other important items, auxiliary mechanisms, etc.

Such problems, however, are now routine engineering work. It will be done in the near future and the new super clipper ships will bring luxury and regularity in transoceanic service. Europe in 15 to 18 hours, Asia or Australia on the second day, three to four day round trip cruises from New York to the North Pole or to the Amazon River Jungles, may be expected to be well in operation before 1950.

Such appears to be the general outlook of some of the aspects of aviation of the near future. The ideas expressed are mostly personal and are believed to be rather on the conservative side. They are based on our present scientific information, on the use of existing power plants and materials, as well as on methods of design and construction. A new discovery in aeronautical or even in general engineering may involve a substantial revision. For instance, if a method of safe and economical production and handling of liquid hydrogen were developed for use as a fuel, this would result in a great change, particularly with respect to long range aircraft. This would make possible the circumnavigation of the earth along the Equator in a non-stop flight without refueling. It would also enable an increase in the performance of nearly every type of aircraft. Other discoveries of similar or of different and possibly unexpected nature may indeed change substantially the outlook that was presented. However, even if it remains within the "program minimum" that was outlined, the immediate future of flying presents a bright and interesting picture and shows that aviation is quickly becoming a major and very influential factor of progress.*

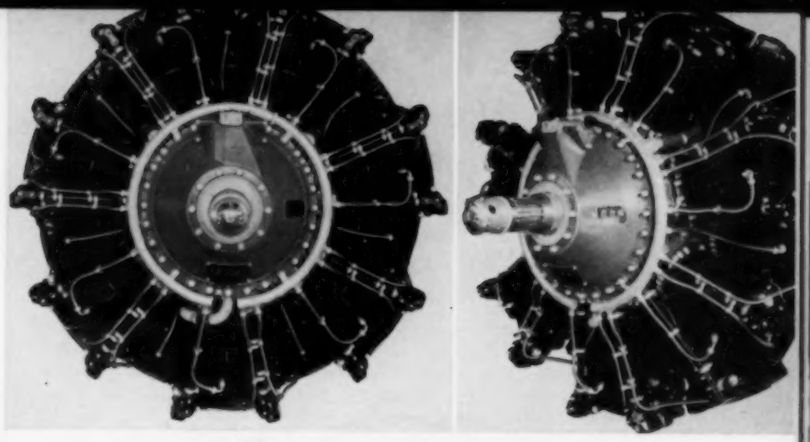
*Published with permission of General Electric Co.

New Equipment Review

Wright 1500 HP Double-Row Cyclone 14

ANNOUNCEMENT was made early this month that Wright Aeronautical Company's new double-row 14 cylinder engine has been granted an approved type certificate by the Bureau of Air Commerce and is rated at 1500 hp for take-off and 1200 hp for normal sea level operation. With a displacement of 2600 cubic inches, the powerful Cylone will see first commercial service on the fleet of six trans-oceanic flying boats now under construction by Boeing for Pan American Airways.

First military application will be made by the U. S. Navy to power the twin-engined Martin Patrol boats for which a contract was recently placed for immediate construction.



The Wright Cyclone 14 Develops 1500 Horsepower

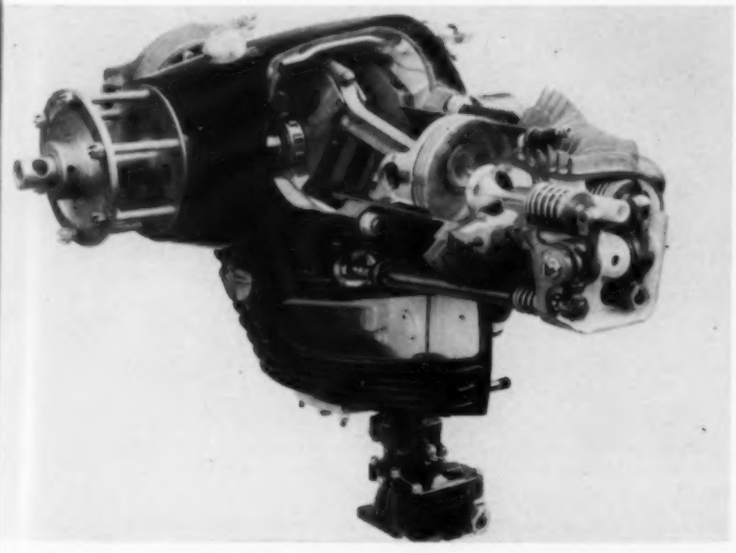
Aeronca 45 Series Engine

THROUGH research and experimentation, the Aeronautical Corporation of America has brought out 2 new engines of greater horsepower, patterned after the original Aeronca E-113-C engine of 40 horsepower, which has also been refined, to provide 3 different combinations which develop 40, 42, and 45 hp. respectively, carrying ATC number 189.

The E-113-CD engine delivers 42 hp. at the approved rating of 2500 RPM. It is identical to the now improved 113-C with the exception of dual ignition—two FF-2-A Bosch magnetos driven through a heavy duty Appolo impulse coupling which gives double ignition through 2 spark plugs in each head. The dual ignition makes the engine smoother at idling and starting speeds, and increases flexibility and greater smoothness at all speeds.

The E-113-CB engine rated at 42 hp. at 2500 rmp. consists of a slight change in cam action along with a heavy train of timing gears, as does the CD engine, to compensate for this slight increase in power and accessory load.

Cutaway View of the New Aeronca 45 HP Engine



The entire combination of dual ignition, overhead oiling, and new cam system gives the E-113-CBD an approved rating of 45 hp. at 2500 rpm. The complete engine weighs only 125 lbs. or 8 lbs. more than the E-113-C.

The automatic overhead oiling system is another refinement which is standard on the CBD, and available as special equipment on all Aeronca engines of the current series and also of the older 113-A and B series engines which are now in service. This oiling system utilizes the entire by-passed supply of engine oil from the gear pump which is carried to the rocker boxes through flexible tubes. This, in turn, passes through the hollow rocker shafts and arms, being enclosed by a new design cast aluminum rocker cover entirely sealing the valve action. The new cover also excludes dirt and grit from the rocker box, and at the same time permits positive lubrication to these parts. In the past the lubrication of the overhead system on all overhead valve engines with manual greasing had been sadly neglected during operation, because there was a tendency to throw surplus grease on the cowling of the plane, making a very undesirable condition.

The oil is returned from the enclosed boxes to the lower main reservoir by means of the hollow push rod tubes which dissipate to the slipstream the added heat picked up through the medium of the oil from the cylinder heads.

This warm oil has another feature of keeping the dural pushrods warm, therefore elongating them and compensating to advantage the decreasing of the tappet clearance under hot conditions maintaining a better valve timing which is practically held uniform because of the oil temperature proportionately increasing along with the engine barrel and case temperature.

Stancor 10-Aero Transmitter

THE Standard Transformer Corporation announces its debut into aeronautical radio with a new miniature transmitter for aircraft known as the Stancor 10-Aero and primarily developed for communication use with airport traffic control towers.

Believing that most radio transmitters for private pilots are overpowered for the purpose they serve, the manufacturers have emphasized small overall size, low power pull and simplification of installation. Only two tubes are employed, an 802 and an 89. Power delivered to the antenna (preferably trailing wire type) is 3 watts. Two crystal-controlled frequencies are provided: 3105 and 3120 kcs., with 100 per cent phone modulation. Total weight of the transmitter including microphone and cabling is less than 16 lbs. for the 6-volt model and slightly higher for the 12-volt model.

According to the manufacturer, additional aircraft radio equipment will be announced shortly.

News of the Month in Review

Fairchild Aircraft to Export Taylorcrafts

As a result of an agreement recently completed Fairchild Aviation becomes the world wide distributor for the Taylor-Young Airplane Company. The terms require Fairchild to take delivery of not less than 46 airplanes annually for distribution in every part of the world except Puerto Rico, Alaska, Canada and of course the United States.

The export division of the Fairchild concern has been active in foreign sales for several years.

Another score in favor of Fairchild was marked up on March 4th, when a contract for 23 Model 24 airplanes was awarded by the Bureau of Air Commerce. Delivery of the planes is to be made in 90 days. Twelve of the ships will be equipped with six hour gas tankage while the balance will be provided with both radio transmitters and receivers.

Lockheed Sales, Employment Grow

Sum total of Lockheed's order backlog now stands at the all time high figure of $6,372,000 as result of Northwest Airlines' decision to exercise the option for three additional Model 14's plus Trans-Canada Airlines additional purchase of six of the new high speed transports. Meanwhile production is being pushed on the new transports and on February 23rd the first two of a fleet of eleven airplanes has been delivered to the Royal Dutch Airlines.

Pleasant news also is the announcement that a total of 2000 persons are now on Lockheed payrolls with the number growing as new business continues to pour in. In January, 1936, only 440 persons were working but this number was increased to 1150 during the following year.

The company recently entered a specially constructed six-passenger transport in a War Department competition. The ship is an adaption of the Model 12. Powered by two Pratt & Whitney engines the top speed is 230 mph and cruises at 213 mph. The purpose of the airplane is for the transport of personnel and for the training of students on multi-engined operation.

Stearman Awarded Phillipine Contract

A third order for training airplanes has been placed with the Stearman Aircraft Company by the Phillipine Army Air Corps. Six advanced and three primary trainers make up the total. The Model 76D3 advanced trainers will be powered with Wasp Jr. engines and the equipment will include two way radio, one flexible and two fixed machine guns, and bombing equipment.

BRANIFF *B-Liners*

SAVE YOU EXTRA DAYS TO DO MORE BUSINESS

How much is a business day worth to you? Remember, an extra day may mean an extra deal. Take a Braniff B-Liner next time. Get there first and get the business!

THERE'S BUSINESS HERE!

RELAX, STRETCH OUT AND SLEEP in Braniff's full-reclining lounge chairs. Individual reading lights, ash trays and ventilators.

All these growing cities are only an hour or so apart, when you fly *"The Great Plains Route"*: Chicago, Kansas City, Wichita, Oklahoma City, Dallas, Ft. Worth, San Antonio, Houston and Brownsville.

For Tickets, Schedules Anywhere—call your favorite travel agent or Braniff Airways.

THE GREAT PLAINS ROUTE... CHICAGO TO MEXICO

Douglas Earnings Over One Million

In the annual report of the Douglas Aircraft Company, released recently a consolidated operating profit for the fiscal year ending Nov. 30, 1937, is $2,372,821 with a net profit of $1,081,513. This is equivalent to $1.90 per share as compared to $1.75 per share in 1936.

Net sales for 1937 amounted to $20,950,361 comprising 303 airplanes of 13 different types. A total of 104 Douglas transports were delivered.

Expenditures for new construction and equipment amounted to $948,584. The Douglas plant sites now aggregate 23 acres with 1,078,674 square feet of floor space. The average number of men employed during the past year was 7,197.

The company's backlog at the end of the fiscal year stood at $31,256,497 and was comprised of the following: United States Army $20,228,231, United States Navy $5,434,818, Commercial Domestic $2,034,429, Commercial Foreign $2,145,593 and Foreign Military $1,513,424.

Rearwin Orders Menasco Engines

An initial order for three 125 hp C-4 engines was recently placed with the Menasco Manufacturing Company by the Rearwin Aircraft Company. Six additional engines will be shipped at a later date to power a total of nine of the new Speedster airplanes which were sold at the recent Chicago Air Show.

Two of the planes will be exported to the South African Flying Service at Johannesburg and another will go to a Los Angeles Sportsman pilot.

Production of the M-50 engine is being pushed and several shipments of this engine have been made to the Aeronca factory which has placed an order for a total of 500.

Switlik Establishes European Factories

As result of negotiations recently completed by Captain Stanley Switlik arrangements have been made to manufacture the Switlik parachute in England and France. L'Aviorex will produce the parachute known as the L'Aviorex Switlik under license in France while the Switlik Parachute & Equipment Company plans to establish a factory in England to produce parachutes principally for the needs of the United Kingdom.

The Switlik Company was awarded the Army Air Corps contract for 2000 chutes and spare parts amounting to a total of $159,828. This is the second consecutive year in which Switlik has received the award. With other government contracts and commercial orders on the books it is anticipated that 1938 will be a record year for the Switlik Company.

Kellett Delivers Military Autogiro

The first of a series of seven direct control autogiros has been delivered to the U. S. Army Air Corps by the Kellett Autogiro Corp. The machines are to be used for observation purposes and are protected from attacking aircraft by anti-aircraft fire in the same manner as that for observation balloons.

Piper Reports Great Public Interest

As a result of an extensive advertising campaign the Piper Aircraft Company announces that over a period of two months they have received more than 15,000 direct factory inquiries asking for further information. This definitely indicates that there is a real interest among the public at large in the ownership and operation of light aircraft.

To supply the orders already on hand and anticipated, the Piper Company recently placed an order for 200,000 yards of Flightex fabric.

Taylorcraft Reports Safety Record

The Taylor-Young Airplane Company recently reported that out of 400 Taylorcraft airplanes now in service only one has met with a serious accident. This, however, occurred while flying at night without night flying equipment and resulted from running out of gas. This is an excellent factual example of the safety of modern low priced airplanes.

United Steps Up Performance

Benny Howard recently completed a non-stop flight from Los Angeles to Chicago with a Douglas DC-3 fitted with twin row Wasp engines said to be the most powerful ever installed in any passenger landplane in this country. The flight was made at altitudes of from 12,000 to 17,000 feet and performance of the airplane was materially improved. The cruising speed at 13,000 feet was 207 mph using only 54 per cent power. The new engines feature greater supercharging efficiency for high altitude operation. Ten of these new transports are soon to be placed in United's Mainliner service.

American Sets New Traffic Record

American Airlines established a new February record for traffic when 17,341 passengers were carried as compared to 15,929 in the same month of 1937, and in spite of a reduction of airplane miles from 1,175,209 to 993,627 miles. Revenue passenger miles for February of this year were 7,526,570 as compared with 6,645,319 for February of last year, a gain of 13.3 per cent.

TWA January Traffic Heavy

An announcement made recently by Jack Frye, president of TWA, reports that 40.77 per cent more passengers were carried by the line in January of this year than for the same month last year. The passenger mile figure for January, 1938, is 4,617,539 as compared to 3,405,737 of last year. Significant fact about the traffic figure, according to Frye, is that it was made previous to inauguration of the policy of carrying wives without charge.

Airship Service Due in Spring

During the early part of June the LZ-130 is scheduled to make its first trip of the 1938 trans-Atlantic service. The airship is expected to be ready for trial flights early in May and when filled with helium will carry 40 passengers instead of 70 as it would if filled with hydrogen, now banned.

The LZ-130 is the same size as the ill-fated Hindenburg but will be joined late in 1939 by the LZ-131 which will be some 12 per cent larger.

As before, American Airlines will operate a shuttle service between Lakehurst and New York.

Seversky Presents Flying Boat Design

In answer to the invitation of Pan American Airways, through Col. Charles Lindbergh, the Seversky Aircraft Corporation has presented a proposal for a huge trans-oceanic airliner. The Seversky design is basically a flying wing fitted with twin floats.

Known as the Seversky Super-Clipper it is designed to carry a pay load of 43,000 pounds over a cruising range of 5,000 miles at a minimum cruising speed of 250 mph and a top speed of over 300 mph. It will accommodate 120 passengers in complete comfort.

The passengers will be housed in the wing of the huge airplane featuring a dining salon, observation deck, promenade and cocktail lounge which will comfortably accommodate 60 persons. Fifty persons will be served at one time in the dining salon. The entire interior would be supercharged to an equivalent of the pressure at 8,000 feet while operating at an altitude of 20,000 feet. Quarters for a crew of sixteen with the control bridge are located ahead and above the center section of the wing.

The airplane will consist of a huge wing of 250 foot span attached to two large fuselages which house retractable pontoons and carry the tail surfaces. The retractable pontoons are a Seversky patented feature designed to improve the performance of the craft and overcome the advantage of land planes over flying boats in performance. The twin pontoons eliminate the need for sponsons or wing tip floats. A hydraulic mechanism acts to retract the floats and absorb shrock of landing especially on disturbed seas.

The engine installations consist of three power divisions, two forward and one aft, each housing two engines coupled to a single propeller. Two additional power plants are fitted into the trailing edge of the wing.

The eight liquid cooled engines will each develop 2,000 hp normal and 2,300 hp for take-off, making a total of 18,400 hp. The nacelles are designed so that two mechanics may work on the engines while in flight and the compartments will be supercharged as are the cabins. A gasoline tankage of 17,000 gallons is planned.

Construction of the huge craft will be of shot welded stainless steel. An agreement has been made with the Edward G. Budd Manufacturing Company for the latter to supply facilities and technical data if the contract is awarded to Seversky.

As a military machine the airplane is said to have a capacity for carrying ten 2000 lb. bombs over a range of 12,000 miles at a speed of 300 mph. A torpedo tube could also be provided and the air dreadnaught could be used for attack of surface vessels both from above and on the water. It is claimed by the designer that the flying monster would effect the enforcement of a naval blockade by the ability to land and search enemy vessels under the threat of its bombs and guns.

SAFETY...

WACO MODEL N
"Lets the young fly sooner and the old fly longer"

WITHOUT COMPROMISING PERFORMANCE

● Designed primarily as the *safest sedan-type airplane* for novice or veteran pilot, the three-wheeled Waco N forfeits none of the speed and comfort that are traditional Waco characteristics. At altitude, it cruises at 148 miles an hour . . . yet its unique design permits safe landings in clearings far too small to accommodate even much lighter ships. Ground-loop and nose-over are impossible. And because of its level flight position when on the ground, all-around visibility is perfect at all times.

See your local dealer, or write direct for complete information. *Terms are available.*

1938 MODEL C CABIN — More beautifully finished — faster than before ... for 4 or 5 persons and luggage ... also available as freighter.

1938 MODEL S CABIN—Sedan-type 4- or 5-place ... greatest airplane passenger-mile value.

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TROY, OHIO

WACO AIRPLANES

SAFETY TO THE 'NTH DEGREE • LUXURIOUS COMFORT • OUTSTANDING PERFORMANCE

Albert I. Lodwick

W. H. Beal

Robert J. Smith

PERSONAL NOTES

The Aviation Corporation has announced the election of W. H. BEAL as president and ALBERT I. LODWICK as executive vice-president of the Aviation Manufacturing Corporation, which include Vultee, Stinson and Lycoming subsidiaries.

ROBERT J. (BOB) SMITH was appointed vice-president of Braniff Airways to succeed O. M. MOISER, who resigned to go with American Airlines. Smith will be based in Dallas and will coordinate the air line's flight, operations and maintenance departments.

Two new inter-city records were chalked up last month by two outstanding airmen. RAY BROWN, chief of the General Tire & Rubber Company's aviation division upset the mark between Miami and Akron, a distance of 1190 miles, flying his Miss Streamline II Lockheed Vega over the route in six hours, 33 minutes, maintaining an average of 189.2 mph. FRANK FULLER broke another point-to-point record when he flew his Seversky Executive from San Francisco to Los Angeles in one hour, seven minutes for an average of 296 mph.

JUSTIN A. FITZ and C. D. JOBSON were among the 38 honor guests at a fourth annual dinner of the Sperry Gyroscope Company's "Fifteen-Year Club." Both Fitz and Jobson have been with the Sperry Company twenty years.

A. LEWIS MacCLAIN, chief test pilot of Pratt & Whitney Aircraft, has sailed for Europe to confer with European officials on engineering matters pertaining to the installation and operation of P & W engines in Europe.

The new director of publicity and advertising for United Airlines is BOB JOHNSON, elevated from the position of assistant to HAROLD CRARY. GEORGE MASON was appointed Johnson's assistant. Crary also announced the promotion of R. W. IRELAND as assistant to the vice-president on traffic organization.

Richard S. Buck, left, receiving the 1937 Manly Medal from S. D. Heron at the National Aeronautic meeting of the Society of Automotive Engineers held in Washington, D. C., March 10-11. Mr. Buck is project engineer, Pratt & Whitney Aircraft. With A. Lewis MacClain, chief test pilot for Pratt & Whitney, he was co-author of the paper, "Flight Testing with an Engine Torque Indicator," which was judged the best on aircraft powerplants presented before the SAE in 1937. Mr. MacClain, having received the Manly Medal for 1934, was not eligible to receive it a second time.

Mr. Heron, a member of the Manly Medal Board of Award, received the first Manly Medal, awarded in 1928. He is research engineer with Ethyl Gasoline Corp.

WM. P. (BILL) LEAR has moved his offices, aircraft radio laboratory and factory to Roosevelt Field, Mineola, Long Island, New York, from Manhattan.

At the annual meeting of the Bredouw-Hilliard Aeromotive Corporation the directors voted to change the name of the company to the Bredouw Aeromotive Corporation with no change in corporate setup. HOMER L. BREDOUW was re-elected president. Directors are WM. J. HERMANN, FRED R. BALSIGER, F. C. KATHS, ARTHUR HARDGRAVE and E. J. BALSIGER.

TWA has announced the appointment of MALCOLM L. BOSS, veteran traffic man, as district traffic agent for the Albuquerque, New Mexico, office.

Effective March 31st, MAJOR E. E. (ED) ALDRIN will enter independent aeronautical consulting work after ten years of brilliant success as aviation manager for the Standard Oil Company. Aldrin will be retained in his new capacity by Standard in addition to new associations with a number of aviation clients.

So They Say

Quotes From Many Corners

"It is indeed unfortunate that municipal officials have been put under the spell of high pressure airline promoters. The terrific expense of long hard-surfaced runways and elaborate lighting facilities is not commensurate with the revenue received from four or six airline and airmail stops per day. Gradually civic organizations will realize that aviation must support itself and that private flying with its varied activities will net the city revenue suffcient to justfy necessary municipal expenditure."—*W. T. Piper, President, Piper Aircraft Corp.*

"The pending O'Mahoney-Borah Bill for Federal licensing of business organizations would foist upon American industry bureaucratic regimentation without parallel except in Fascist countries. . . . The reason is not far to seek: there can be no one sweeping law or plan to regulate the entire economic life of a great nation like this. The living principle of the American system is free enterprise. Certainly there are maladjustments and abuses in our economic system. Surely reforms are needed. But our problems flow from fundamental causes. They cannot be solved by fiat of bureaucracy or by legislative edicts."—*J. H. R. Cromwell, outstanding economist and author.*

"Proposals for flying machines weighing 250,000 pounds tax the imagination. But no more than today's accomplishments taxed the imagination ten years ago."—*Orville Wright.*

"The author of CAR 18 has given little consideration to any difference between an approved repair station and an itinerant mechanic, to an extent that there is little advantage in going to the expense of meeting the rigid requirements to be certified as an Approved Repair Station as set forth in CAR 52. The Approved Repair Station must make the same drawings, get the same inspection, and fill out the ubiquitous Form 466, or what should be Form AC 18-1, but the Government Printing office is about four laps behind, so we do not yet have with us this new form."—*Frank Say, Manager, Booth-Henning Shop.*

"The Air Commerce Act should be revised and brought up to date. This Act now prohibits the Department of Commerce from spending money on airports and from installing certain air navigational aids on air terminals."—*A. B. McMullen, Chief Airport Section, B. A. C.*

Ports of Call

Correspondence from the Airports and Airways

Big Spring, Texas

Flying Club Organized

The Big Spring Flying Club has been organized with thirteen members. They are Woodrow Campbell, president, Floyd Blackwell, vice-president, Hudson Landers, secretary and treasurer, A. H. Haynes, Burk Summers, Wesley Pearce, Ed Reigle, J. D. Arthur, Myers Newman, John J. Payne, Dr. W. B. Hardy and Mrs. Mary Golden all of Big Spring, and Robert White of Staton, Texas. The Club has bought a Cub from Wm. C. Breedlove of Lubbock, Texas.

The Navy has made several stops here this month with new planes from the factory on their way to the west coast. We have also had a large number of private ships in, as follows: B. E. Cole of Airline Charter Service, Boston, Mass., stopped here for one day while in this section of the country to organize some of the boys that do charter work in private ships with airlines. It is an off-line feeder and charter service to towns that don't have regular airline service. The Lockheed factory has ferried two of their fourteens through to the east coast on their way to Holland.—*JAMES D. PHILLIPS.*

Birmingham, Alabama

City To Be on Proposed New Air Route
Messer to Offer Blind Flying

Charlie Preston, staff photographer for one of Birmingham's local newspapers, brought his projector to the airport recently and showed several interesting movie reels including a number of scenes around the airport. Since starting flying lessons with King Aircraft Service most of his time is spent taking pictures of airplanes instead of pretty girls which seems to meet the hearty approval of Mrs. Preston.

Harold Helfer who writes "The By-Ways of Birmingham" column in the Birmingham Post recently took his first lesson with Harry King. Flying only a few blocks from the airport and getting lost was a new experience for Helfer and he readily admitted it was rather exasperating to confuse a white house with a large back yard for the airport.

Al Litzenberger, pilot, and Carl Litzenberger, co-pilot, flying a Lockheed Electra plane owned by Mesta Machine Company brought a party of steel executives to Birmingham from Pittsburgh for a three day visit recently. In the party were: Henry Roemer, president, Pittsburgh Steel Company; Jack J. Roemer, coal operator; George T. Ladd, president United Engineers Company, and V. E. Kibbee, executive vice-president, Sharon Steel Company. As the guest of Hugh Morrow, president of Sloss Sheffield Steel and Iron Company, the party enjoyed a hunting trip to South Alabama along with other entertainment arranged for them during their stay here.

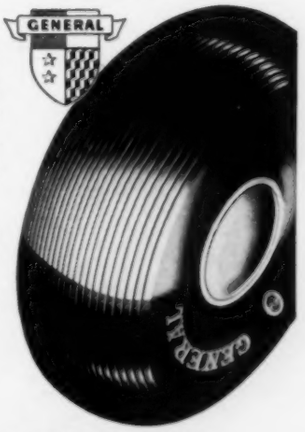
J. A. Williams, WPA superintendent of the Municipal Airport project, announces that "base slag has been laid on half of the new runway and the top course of asphalt and slag will be started next week." April 1st is set as date of completion for first half of the runway.

Resodding bare spots, filling low places and covering surface drains with dirt will greatly improve the entire landing area of the field. All preparations have been made for the laying of the new cable for the lighting system which will start at an early date.

Blind flying training will soon be available at the Municipal Airport when Glenn Messer completes his Fleet trainer for this purpose. Two complete sets of instruments, radio and all the necessary accessories for flying under the hood is being installed, and the airplane will be used only for blind flight instructions.

Steadham Acker, airport manager, was called to Washington February 21, to confer with Harlee Branch, second assistant postmaster general, on the proposed new air mail route from Kansas City to Tampa. After this conference there was still some hope that Montgomery, Ala., will be included on the new line through Birmingham. Possibility that alternate bids will be asked on a line from Memphis to Tampa and one from Kansas City to Tampa, with one route going through Atlanta and one via of Montgomery.

1938 FINDS GENERALS OUT IN FRONT AGAIN



● The same unique quality that makes General Airplane tires first choice for strenuous military service makes them first choice in commercial flying where there can be no compromise with safety.

Prominent Users of Generals

Army	Navy
Stearman	T. W. A.
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GENERAL TIRE & RUBBER CO. • AKRON, OHIO

GENERAL Airplane Tires

KNOWN ROUND THE WORLD FOR SAFETY !

Flying no longer confines its thrilling appeal to the youth of this nation. B. F. Sausnett, a 55-year-old grandfather of Jacksonville, Ala., has learned to fly and can be found most every day now at the Gadsden, Ala., Airport awaiting his turn for a solo flight in Gordon Pierce's Cub.

It seems that all the elders are getting quite air-minded in the Gadsden vicinity. Mrs. Fannie Snead, age 70 of Boaz, Ala., and Mrs. Laura Vickory, age 71, of Gadsden, took their first airplane ride recently and described it as being the thrill of a life time.

Gordon Pierce who operates a flying school at Gadsden reports that he has 20 students taking flight instructions and the following new ones: Marvin Huggins, Dr. Cary Graham and Andy Bedsole.

J. H. Digby, airport section of the WPA, Washington, D. C.; Charles Wilsky, Bureau of Air Commerce, Washington; S. E. Travis, Bureau of Air Commerce, New Orleans; and Asa Rountree, State Aviation Director, have completed an inspection tour of airport projects. Work at the Municipal Airport here was inspected by the party.

Bids are being taken on a new hangar at Dothan and work on the new hangar at Jasper has begun. The Department of Commerce emergency field adjoining the Tuscaloosa Airport is being graded to the same level as the airport. Plans are being made for two paved runways at Montgomery's Municipal Airport and work on other projects in the state is going forward rapidly.

Art Wintheiser, who operates a flying school at Tuscaloosa flew his Piper Cub to Birmingham recently. The plane will be given a complete overhaul by King Aircraft Service. Wintheiser has 30 students flying with him and anticipates a very busy summer.—*EARLE WHEELER.*

Bristol, Virginia

Spring Weather Brings Out New Students

A steady increase in flying activities is being shown since the Great Lakes Trainer has been put back into service and the winter weather has started to give way to spring.

Among the students at this field are two young ladies of Bristol—Mrs. W. K. Owen and Miss Julia Kelly.

Students of the "Prop and Wing Club" went on a house party the week-end of the 26th. Many socials and flying contests are on the list for the near future.

We regret the loss of one of our students, Mr. R. H. McClure, who will return the fifteenth to Knoxville for the spring quarter at University of Tennessee but will return to Bristol in June.

Charlie Kilgore of Bristol left the eighth for Chicago to help the other boys doctor the American Airlines Transports.—*KELLY OWEN.*

Brownsville, Texas

Flights to Mexico on Increase

During the recent Charo Days Celebration staged by the City of Brownsville, the employees of Pan American Airways entered wholeheartedly into the spirit of the occasion by appearing at the airport in their colorful costumes during the three days of the celebration. Many "Ohs" and "Ahs" were uttered as well as many questions asked by passengers arriving on Braniff to take the Pan American plane south. Not being familiar with the celebration in the city, their curiosity was greatly aroused at the spectacle.

Col. W. C. Brooks cleared customs in Brownsville on March 9th enroute to Costa Rica with a Boeing 40-B4 for delivery to the government.

Another clearing customs was Pilot S. B. Morgan, ferrying a Grumman Fighter to Managua, Nicaragua, for delivery to that government.

Recent visitors to the Brownsville airport were the Goodyear Tire and Rubber Company's Stinson piloted by C. O. Bell, Gulf Oil Company's Stinson piloted by Buck Rowe, O. C. Easter in his Cessna from Corpus Christi, Pilot C. B. Blackwell from Raymondville in his Waco, C. M. Ferguson from McAllen in his Cessna, W. N. Vicars from Raymondville flying a Taylor Cub, G. Arents, in a Beechcraft from Houston, Fritz Secor, Fairchild from McAllen and the Pure Oil Company's Stinson piloted by D. H. Young from Harlingen.—*GUY BEVIL.*

Cincinnati, Ohio

New Design Startles Locals

One day recently at Lunken Airport the hangar-pilots and such gazed up to see a mighty queer looking flying machine. It looked like a huge leather-winged bat as it circled the field for a landing. Suddenly the pilot headed the nose down and we mean he really landed steep and short. When he taxied up to the hangar we saw it was the new version of the Lanier VACU-Plane, powered with the two cylinder opposed 40 H. P. Aeronca engine. The wing span of the plane looked to be about 10 to 12 feet and the fuselage about 10 feet. The ship

VI

ANNOUNCING

The Appointment of HANGAR SIX, INC., as Distributors for CESSNA Airplanes in the State of Texas

To complete our line by addition of a *fast* airplane, unsurpassed in quality and economy of operation, Hangar Six selected "The World's Most Efficient Airplane."

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is a single-seater and so designed that the pilot sits down between two wierd looking gulled wings which sweep up, swoop down and sweep back. Odd and different from the usual airplane, nevertheless it climbed well, landed very short and seemed rather fast in the air. One thing to be said for the VACU-Plane: here is a plane which fits in the average garage.

A new elevated highway is now being constructed to Lunken Airport. This new road will decrease the driving time to the airport from five to ten minutes. When finished this new road will enable you to drive from the heart of Cincinnati to the Airport in about ten minutes.

George Wedekind, the Queen City Flying Club's well-liked manager, is recovering from an operation. This reminds us that Elmer Davis, well-known pilot, has recently become a salesman for Queen City Flying Club.

A couple of weeks ago the Aeronca Flying Club gave a roller skating party. It developed that several flying aces who knew just the proper amount of aileron and rudder required to make a turn in the air didn't have the slightest idea about the amount needed to bank a turn on roller skates. So a few of the skaters were always connecting for nose heaviness and tail heaviness. The skating party was a big success, however, and the Flying Club plans to sponsor another soon.—*A. F. DAVIS.*

Dallas, Texas

Many Delegates to Oke City Meeting
Dallas Pilot Reports From China

As this is being read most of the boys and girls around Love Field have returned from two conventions in Oklahoma City, March 11th and 12th—the Southwestern Aviation Conference taking the boys and the National Convention of the Women's Aeronautical Association taking the girls. Delegates representing the Dallas Unit of the W. N. A. A. included: Mrs. Don Marshall, Mrs. Harold Mull, Mrs. Harry Sellers, Mrs. Roy Harding and Mrs. Ray Shrader. Next month we'll let you know whether our local Unit won the coveted membership trophy and also the prize for the best Unit Stunt. To date this is the largest Unit in the United States and members are hoping to keep it in the lead by helping aviation in every way.

Harold Mull, one of the three Love Field pilots in China, writes some interesting accounts from Hankow and shell-wrecked Woosung. He states that the Japs are censoring everything, but that he believed Lyman Voepel was on his way back to the States and that Jim Allison was somewhere in the interior of China. Harold says he's quite a master with the chopsticks by this time and the boys at the hangar are looking forward to a demonstration when he returns.

Hal Henning of Booth-Henning, Inc., has returned from the West Coast with a new Ryan S C and it's a sweet flying ship, according to those who have hopped it around the field. The other Ryan, an S T model, has been sold to Jimmy Wooten of Lufkin, Texas.

Asbury Meadows, Department of Commerce Inspector, with Mrs. Meadows and the brand new daughter, Martha Ann, are vacationing in Hot Springs, Arkansas, taking that much needed rest, according to reports.

C. Newcorn, who is in charge of the stock room at Dallas Aviation School has been in the hospital. We hope by this time he is back at his post and ready for the spring rush.

Recent visitors include: Francis McDonald from Laredo, flying a Beechcraft; Freddie Ridenour, Wichita Falls, in a Beechcraft; Ellis Overstreet of Hobbs in his Waco; Max Parkinson of Hobbs in a Stinson; "Cotton" Jeter from Shreveport in a Stinson and Bill Cason, flying Al Buchanan's new Wasp Beechcraft.

And now we'll lean back again and scan the skies waiting for Bub Merrill of Bennett Aircraft to bring the new bi-motored ship to the home hangar. Bub has been in Los Angeles quite awhile waiting completion of the plane that Frank W. Bennett is sponsoring.—*DOROTHY G. RODREICK.*

Coffeyville, Kansas

Walter Beech Pays Visit to Port
Schools Active

Walter Beech and H. C. Rankin were here from Wichita demonstrating a new twin-motored Beechcraft to O. C. S. Mfg. Co. officials a few days ago. From the same city, came Morris W. Alford, Taylor-Young representative, to demonstrate a new Taylorcraft to prospective customers here.

Lawrence "Doc" Coyle, a student of Airport Manager Berentz, was the only student to solo during the past month. Only a few days after soloing, "Doc" received his appointment to the Army training school at Randolph Field, San Antonio.

The Jensen Brothers Mfg. Company has purchased a Stinson Reliant from the Martin & Manning Drilling Co. of Denver.

Lee Ferguson made a business trip to Kansas City and St. Louis in his Cessna. Lee and Henry Duncan also made a trip to Oklahoma

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City in the Cessna to attend the Southwest Aviation Conference.

Russell Jones of Spring Green, Wis., a former Coffeyville high school instructor, is visiting friends here and brushing up on his flying too. Mr. Jones was a member of the Coffeyville Glider Club when he taught here.

Activity at the local port is maintaining the fast pace which has been in evidence for the past year. Henry Duncan has his Aeronca K in the air training students the major part of each day, while Lynn Berentz is also busy flying his two American Eagles, "Patsy" and "Betsy." Both instructors have a large number of students, and charter trips are proving quite profitable to Berentz. Two such trips were made by him during the past month, one to Fort Scott, the other to Independence, Kansas.

Beale Robinson has brought his OX Robin from Independence for storage. This makes a total of ten planes hangared in the local hangar, and completely fills the structure.

Students of Henry Duncan seldom let more than a few days go by but what they have some sort of a social gathering and as a result they are one happy carefree bunch.—*HAROLD E. HAGGARD.*

Houston, Texas

J. D. Reed Buys Out McKaughan
Dunlap Represents Booth-Henning

Student activity is beginning to pick up around this airport now that favorable weather has arrived to stay. All the operators report good business and Tom Lochridge, Rearwin distributor, is doing so well that he has employed Al Hopson to take care of his business. Tom says the future looks very bright and says he will sell lots of the new Rearwin Speedsters.

Booth-Henning, Inc., is now represented on this airport by Sam Dunlap. Mr. Dunlap has lots of flying experience and will be a real asset to the flying fraternity here.

Curly Walton is almost ready to move into his new office here on the airport. Jesse Vester is established in his large new shop and Mr. Hobbs, the airport manager, says the work on the airport is progressing nicely.

The airlines have moved their transmitters away from the airport and it is now possible to talk over the telephone without hearing the conversation from ground stations to the planes aloft. Through some peculiar quirk it was possible to hear the airliners talking to the ground stations by merely taking the telephone off the hook and listening. This was very interesting at times, but very disconcerting when trying to complete a long distance call. However the airlines showed their usual willingness to cooperate and moved their transmitters several miles away.

R. E. McKaughan has sold his interest in Air Activities, Inc., and has been succeeded as president of the company by J. D. Reed. McKaughan has been engaged in the aviation industry some eight years and will be genuinely missed, as he was sincere in his desire to put the aviation business on a firm business-like basis. He has taken over his father's extensive business, and though we know he will be very busy, we hope that he will have time to drop out and do a little "hangar flying" with us.

I. D. Gidden of El Campo was in today in his new Taylorcraft and reports nice performance.

Jesse Williams, Loffland Brothers Company, driller, who was injured quite badly in an automobile some time ago is back on his feet again and has about decided that the air is much safer than the present-day highways and is going to start flying soon.

Lee Myers made his first cross country trip recently and reports a fine performance out of his Porterfield.

Carl Myers is at the Fairchild factory taking delivery on his new "24" and we understand that L. A. Yates of San Antonio will take delivery of his new "24" in the near future.

Dale Maret was down from Navasota and says everything looks fine up that way.—*CLYDE FOREMAN.*

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Mr. Wm. Hutchins, Department of Air Commerce Inspector, and Douglas Langstaff, State Aeronautic Inspector of New Orleans, paid their official visit to Lafayette Airport.

Glynne M. Jones, Department of Commerce Inspector of Boston, Mass., formerly of Lafayette spent a day at the port. Glynne flew from Boston with Lt. Winston Harlow and came to Louisiana because of his mother's illness.

Charlie Baughn (better known on the Mexican border as Pistol Pete) is at the local port making short rides and chartered trips in his Stinson. Mrs. Fanny Leonpacher will represent Lafayette as a delegate to the Southwest Planning Conference in Oklahoma City, March 11 and 12.

Visitors making the port this month were Dude Camden in a Beechcraft; Harry Watson, Aeronca; Major J. W. Howard and 1st Lt. R. F. C. Vance of U. S. A. from Kelly Field to Maxwell Field. Also L. R. McGekee, Thomas Tieje, Wm. F. Dunz, J. O. Dockey, E. H. Hunt, Sam Gormly, Capt. J. F. Guillett, H. L. Gray, I. Roy McDermott, W. A. Stewart, Lynn Kingham and Lt. Shepherd.

Pass the word to all pilots and passengers that the Evangeline Chapter will welcome the Air Tour with wings aspread on the 28th of April. Bigger and better.—*MRS. F. V. HUTCHISON.*

Montgomery, Alabama

Visiting Ships on Increase
Alabama Air Service Established

Wren Allen, former instructor for the Montgomery School of Aeronautics, and J. B. Atkinson, Jr., local sportsman pilot, have entered business under the name of the Alabama Air Service, the distributorship for the Cub. They will operate sales, student instruction and charter service.

The Montgomery School of Aeronautics traded their Cub off for a new Aeronca K, but the wind has been too strong lately to put much time on it.

Eastern Air Lines had a DC-3 here for a few days which was of much interest to the local citizens. If we could just get the people out here to ride in local ships as they flocked out to give the Douglas the once over the depression, or rather business paralysis as the worthy editor calls it, would be over.

During the month of February we had more visitors than we have had in quite some time. Among them were: Jimmie Parker and E. L. McGowin, Jr., in the latter's low-wing Aeronca; J. P. Herman in a Ford Tri-motor belonging to Mene Grande Oil Company of Venzuela, S. A.; G. M. Westby in a Fairchild-24; Phil Gibbons, President of Eastern Air Schools in a Wright Travelair; W. L. McLanahan in his Lockheed-12 piloted by Paul Clough; Jake Moose in a Waco; G. W. Brocksom in a Waco-F; Chas. H. Biggs in the Pure Oil Co.'s Bellanca; Jim Kukula of Piper Aircraft in a Cub; E. W. Parker in a Stinson Reliant belonging to the Coca-Cola Bottling Co. of Pine Bluff, Ark.; H. H. Culler, instructor for Eastern Air Schools in a Travelair; J. H. Crummer in a Stinson; Milton Yielding in his Monocoupe; Bob Wight flying a new Cub enroute from the factory to New Orleans for Aircraft Enterprise, Inc.; Mr. Heimple in a Waco; Odell Garrison of Birmingham in his Waco; W. R. Furr of Tampa, Fla., in his Stinson; Bliss Flaccus in his new Fairchild-24; Ken Schneider of Anniston in his Monocoupe; and Mel Wood in a J-5 Travelair flying for Midwestern Aerial Advertising Corp.

J. B. Atkinson, Jr., made a trip up to Wayne, Michigan, in his Stinson to visit the factory. He was accompanied as far as Cincinnati by Wren Allen who went over to Lock Haven, Penna., to get a new Cub for their newly formed Company.—*CHARLIE THIGPEN, JR.*

Oklahoma City, Oklahoma

Memorials to Post and Rogers Celebrated
"Uncle Jim" Brazell Has Seventieth Birthday

On February 13th, all Oklahoma City pilots paid tribute to the late Wiley Post and Will Rogers by making a mass flight over the historical building and dropping flowers. This was the dedication of the busts of these two men given by Frank Phillips. Those making the flight were as follows: Milo Burcham, Paul Black in a Monocoupe; C. R. Nuckols in a Fairchild; Haskel Shaw and Harold Linn in a Fairchild; Paul Heffner in a Wasp Travelair; L. T. Dutcher in a Waco; Cliff G. Giblett in a Waco; J. S. Maxfield and Charles Rhodes in a Stinson; Robert Allen in a Stinson and Jerry Sass in a Stinson. A number of army ships from the air reserve base here flew above these

private ships in a beautiful formation.

Oklahoma City is very happy to have Mr. F. C. Hall and Milo Burcham back with us once again. The return of Milo gives us one more good stunt man along with Roy Hunt and Carl Winstead, so guess the Sunday crowds will enjoy a nice show.

L. T. Dutcher has been kept very busy flying Oklahoma Transportation Company's Waco, but he doesn't mind as he likes to fly anyway.

Jack Neal, one of our well known local boys, has been flying Beverly Osborn's Cessna C-37 which she calls "Chicken in the Rough." It seems that you can get everything but a chicken dinner on this ship.

Mr. Jim Brazell can be seen on every pretty day out flying his yellow Fairchild. As you probably know, Uncle Jim is the oldest active pilot in the country, to my knowledge. He was 70 years of age on the 29th of February, and here's wishing him many more happy birthdays and an extended flying career.

Down at Norman there are a number of boys and girls who have to come all the way to Oke City to learn to fly. We welcome them and hope that they like our city as well as we like having them learning on our airport.

Grace Stevenson, who holds a private license, can be seen flying Winstead's C-34 Cessna. She is well on her way to a Transport, and we hope she gets it very soon.

Haskell Shaw reports that he has acquired a number of new students. Among them are the Seiber twins, Delores and Delois, C. V. Caviness, Slim Mason, Mr. Cox of Anadarko, Mr. Hilborn, Dr. Bolton and newest and latest, R. L. Ferhing.

Norman Blake reports that the repair station is in full swing with considerable work on tap.

The airport has built new awnings on the front of the Terminal building and has made good progress with the new runway which is a big improvement to the field.

Nolan Gibbons won the free course offered by the Universal School of Aeronautics. He is around the field most of the time taking advantage of his good fortune.

W. C. Garthoffner reports the sale of his Cavalier Coupe to Sid Sims and Charles Thomas, so now he has only his SM8A Stinson with which to cover his territory selling Hickok Belts.

Eugine Beeman of Braniff Airways is now entering the realms of matrimonial bliss. Young Doggett is best man.—*PAUL O. BLACK.*

Orlando, Florida

'Gator Club Membership Climbs
New Plan for Establishing Operators Launched

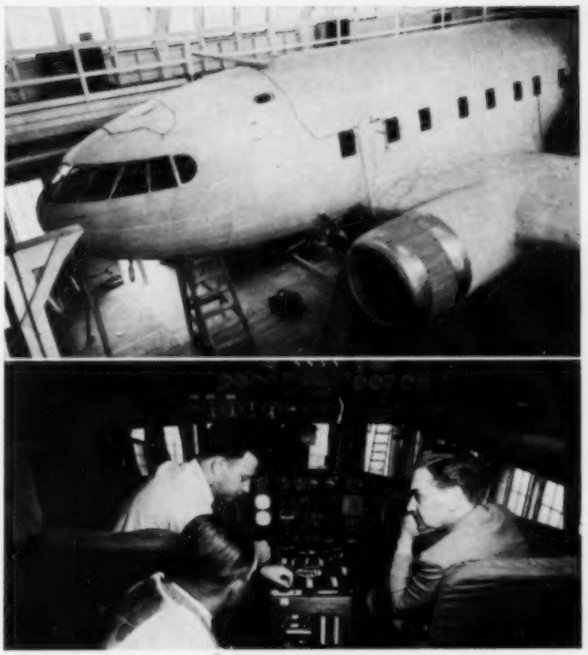
Al LeFevre of Aeronca factory is a frequent visitor this winter, working with "Griff" Griffeth, local Aeronca dealer. Bill Miller of Cub was here most of last week assisting local Cub dealers, Knothe & Pleus.

Wes Raymond gets in his usual good licks here too in coordination with Taylorcraft dealer, Wilson Mills.

Airport Manager Huzz Mueller is all aflutter with City Engineer Brown, Wayne Gray and the Superintendent of Beautification with a lot of late improvements and shaping of plans for new big hangar, longer runways, etc., in connection with a new $150,000 port improvement project.

A dozen or more of our local private-owner pilots are planning an air picnic at Apopka as guests of Jack Rainville of the "Palms."

"Ken" Hoequist, our popular Service Manager, and all his boys are up to their necks with the shops full of motor and ship overhauls, etc.



Boeings Near Completion for TWA
Jack Frye and staff are shown here making final inspection of the new "Stratoliner" prior to the company's acceptance of the design.

We are also appointed official inspectors for Aero Insurance Underwriters.

The SPA group paid us a visit on their 5th annual rendezvous. Nineteen nice planes and 40-odd people spent a couple of days, had a banquet and ball at Dubsdread County Club, including a "Gator Club" initiation when 18 new members walked the hot sands into Gatordom.

Doc. Miller of Greenwich dropped in for a few days, during which time he and the writer barged off to Punta Gorda in Doc's new Ranger Fairchild and had a nice visit with Grove and Ilene Webster at Eagles Nest.

Bob Donner of Buffalo is wintering at Boca Raton but he comes to Orlando often in his Ranger Fairchild; hunts a lot here too. Carried a nice batch of venison and quail back with him the other day.

Speaking of "Gators" looks like everyone in the country wants to join the Florida Flying Alligator Club. Hardly a day goes by but we receive applications from all over the country. Made six new members in Canada last week. There are now about 450 all over the U. S. and Canada. The growth of the club is uncanny. The one major objective is friendliness and good-will in aviation—that's *all*, and it is

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DALLAS AVIATION SCHOOL

Love Field **Dallas, Texas**

really putting it over.

Dan Wallace, local Fairchild distributor for the southeastern states, has some nice deals pending both for new and used ships.

Pete Sones, local Stinson Distributor for Florida, sold our own Jack Crummer, local bond broker, a gorgeous new job last week.

Alex Knothe and "Griff" Griffeth, our two outstanding licensed and approved instructors, have their hands full with students, and we mean just that. There are now 23 locally owned ships which is, we think, a record for a small city.

The writer and State Director Herbert Whitney have evolved a plan for installing from 25 to 50 good operators upon as many good ports at Florida cities. Sounds like a big order, but you'd be surprised at the interest it's stirring up. Three of the leading factories are cooperating 100 per cent with our plan and Herbert has placed (among others) Gill Robb Wilson and Dave Little on our committee.

Eastern Air Lines has stirred up more business than they expected (they didn't believe it when we told them how air-minded Orlando is). They are having to turn down from one to ten prospective passengers every day. We hope they'll wake up and give us more schedules.

The last two weeks of this month we have the second bombardment group for winter maneuvers. There'll be 12 of the 4-motored flying fortresses, approximately 60 officers and 200 enlisted men. We are going to give the men a big party at Sanlando Springs and the officers a ball at the Country Club. Many will no doubt walk the hot "gator" sands. There will be five of these groups in Florida, one at Lakeland, one Tampa, one Sarasota, one Orlando and one Jacksonville.

Just recently finished a lot of airport improvements here. Modernized the Ad Building, glassed in Eastern Air's radio equipment, added office space for National Air Lines and they expect to install their radio next week. We also added a lot to our already elaborate landscaping. It is a beautiful place now, and you should see all the Azaleas in bloom around the hangar.

Wayne Gray, our Commissioner for Aviation, returned from Washington last week via Eastern Air. He attended an Air Mail hearing at the U. S. Post Office Department.—*ED NILSON.*

Ponca City, Oklahoma

Air Show Planned by Thunder Birds

With the recent government approval of the runway project, Braniff Airways, Inc., announced the resumption of daily passenger and mail schedules for March 15th.

Organization of the Ponca City Aviation Club, the members known as the Thunder Birds, is complete. The Thunder Birds, formed to help the growth and development of Aviation in Northern Oklahoma, have a large membership and full cooperation of the City is promised by Mr. A. E. Runnels, Secretary of the Chamber of Commerce.

All airmen should plan to attend the mammoth air show sponsored by the Thunder Birds. The show will be the sportiest Sportsman Pilot meet ever held, so plan to be in Ponca City on Sunday, May 1st.

Roy O. Hunt spent a few days here while having adjustments made on Mr. Fain's club Electra.

Lt. Fred Mills, Scott Field, flying an O-46-A spent a few days here visiting his parents.

Albert Meyer, local Department of Commerce inspector, paid us a special visit and inspected planes due for relicense.

With student classes in Alva and Pawhuska, the Ponca Air Service report a total enrollment of forty-five students. Mervel Sweeney, Louis Randell, Burgess Shriver and Richard Myers have soloed and are building up time on the Cub.

Brooker Air Service, Luscombe distributors for Oklahoma, are expecting delivery of their new "Fifty" next month. Organization of the new Brooker-Erickson School of Flying, Inc., is about complete. They are making application to the Department for an approved flying school certificate. Cubs, Luscomb "Fifties" and a Stinson Reliant will be used for flight instruction.

Red Gray and Ted Colbert are busy flying the Continental Oil Co.'s Lockheed "Twelve's." Mr. D. A. McJunkin and crew are now overhauling two of the spare motors used in the ships.—*C. M. BROOKER.*

(Continued on Page 26)

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FOR SALE: 1936 Porterfield LeBlond 70, 250 hours, Deluxe, excellent condition, $1,000. Orville A. Sheffer, 206 Central Building, Wichita, Kansas.

REARWIN KEN-ROYCE, Challenger powered, covering only one year old, excellent condition, just relicensed, cruises 120 m. p. h., high gloss finish. BARGAIN—$1,200. Campbell Aircraft, Love Field, Dallas, Texas.

FOR SALE: EAGLEROCK OX-5, unlicensed, in good flying condition. $300.00. Will teach purchaser to fly if necessary. Herbert Sims, Floydada, Texas.

FOR SALE: DeLuxe REARWIN SPORTSTER, many extras, 250 hours, Bargain. Tom A. Lochridge, Houston Municipal Airport, Houston, Texas.

FOR SALE: STINSON Jr. S. Total time 700 hrs. 170 since factory major. Excellent condition throughout. Beautiful blue and yellow finish and special upholstery. Remote control Westport radio, new battery, landing lights. Complete instruments and many extras. Licensed til Sept., 1938. Best buy in Southwest at $1750. Write or wire Bob Landers, 129 N. Chautauqua, Wichita, Kansas.

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Ports of Call

(Continued from Page 24)

San Antonio, Texas

New and Used Plane Markets Active

The month of February showed a considerable increase in flying in and out of this field over the past two months. There were 986 passengers here on regular scheduled transports and 215 privately owned ships carrying 464 passengers. Compared to December when there were only 611 transport passengers and 184 private ships carrying 296 passengers, this is quite a subtantial increase.

The three flying schools report student instruction on the upgrade and the sale of privately owned ships has improved. In regard to the latter, on Saturday, March 5th, approximately $36,000 worth of new and used ships changed hands.

Gabriel French, Stewart Harris and Ed Johnson bought a Porterfield. Lewis Carley now has an Aeronca. Kargl Aerial Survey bought a Beechcraft, Harman bought a Stearman, Hangar Six took delivery on a Cessna, and Al Buchanan's new Beechcraft was flown from the factory by Bill Cason. Hangar Six also has two new Sport Cubs which were sent from the factory by truck and trailer, and are being assembled.

The plans for the enlarging of the field have been approved and work will start shortly. With this additional land Stinson Field will have the required length runways to meet the Department of Commerce regulations for a Class A Field.—*GREG MOORE.*

Savannah, Georgia

Local N. A. A. Is Active Group
Military Craft in Evidence

The proposed lease which will give the United States government space in the administration building at the Municipal Airport came before the meeting of City Council recently and was referred to the airport committee of which Alderman George C. Heyward, Jr., is chairman. It is proposed to lease to the U. S. government at a nominal rental of $1.00 certain parts of the building so that it can establish a headquarters for radio communications and weather bureau. It is a step in the advancement of the airport which the city hopes and expects will soon be an important north, south and west airmail junction.

Further improvements of the airmail service recently revived here, were announced on March 2nd at the Post Office. New connections will make it possible for mail from Savannah to reach Charleston, N. C., by rail every night in time to catch the plane from that city which is due in New York the following morning at 5:20.

Your correspondent has received an invitation to join the 99's.

A stag dinner and speaking program is planned by the Savannah chapter of the National Aeronautic Association at Hotel DeSota. The speaker of the evening will be Alderman Heyward, chairman of the Airport Committee of City Council. The committee in charge of the program is composed of Joseph Perelstine, chairman, W. D. Bennett and John Kimker. The meeting will be presided over by H. D. "Sandy" Strachan, Jr.

Three majors of the United States Army Air Corps stopped at Hunter Field, Savannah Airport, for a short stop-over before going on to Florida for maneuvers. They were Major Leo Post, inspector of aircraft at Mitchell Field, Major Walter J. Reed, in charge of operations at Langley Field, and Major J. N. Davidson from Selfridge Field. They were flying a Northrop A-17.

Lt. Reed Sweeney, U. S. Army Air Corps from Ft. Benning, Ga., stopped at our port enroute to Florida.

Lt. E. W. Parrish, U. S. Navy, arrived during the past few weeks for a visit with his parents, Mr. and Mrs. Elliott W. Parrish. Lt. Parrish is in the Air Corps, and made the trip from Annapolis, Md., where he has been stationed for the past two years, to Savannah piloting his own plane. He was accompanied by Arthur Lamar of Washington, D. C.

Savannah had an opportunity of seeing a large flight of army bombing planes enroute from Langley Field to south Florida for maneuvers. One of the planes, a flying fortress, was piloted by Lt. Robert F. Travis.

Capt. Wilder Enslow has been appointed chief instructor of Strachan Skyways.—*LYDIA MUSE BETTENCOURT.*

Shreveport, Louisiana

Louisiana Air Tour Guaranteed Success

More than 50 planes and 150 persons from Louisiana, Arkansas, Texas and Oklahoma are expected to enter the second annual Louisiana air tour which will start at Shreveport on April 28th under the sponsorship of the Ark-La-Tex chapter of the National Aeronautic Association.

The tour will visit Mansfield, Many, Lake Charles, Lafayette (night stop), Opelousas, New Orleans (night stop), Baton Rouge, Alexandria and Monroe, in that order. Among entertainment features will be a gala send-off barbecue and dance at Shreveport the night preceding the start, a party at Lafayette, a "24-hour" blowout in New Orleans and a big aviation ball in Monroe.

Arrangements for the tour are being made by a statewide committee composed of Lake Littlejohn, chairman, Cliff Stovall, Tom Ashley, Dan Leahy and Ralph Corn, all of Shreveport; T. B. Herndon of Mansfield, state N. A. A. governor; Mayor Milton Delisle of Many; Harry Watson of Lake Charles; Mayor Maxim Roy of Lafayette; Donald F. Kemper of Opelousas; J. P. Fraim and Bruce Broussard of Baton Rouge; Mayor V. V. Lamkin of Alexandria; J. T. Callahan and Douglas O. Langstaff, director of state aviation commission, both of New Orleans, and Ed Apperson of Monroe.

Mrs. Fritz Martin of Shreveport, state governor of the W. N. A. A. and southwestern sectional governor of the Nine-Nines, and members of the Shreveport W. N. A. A. chapter will have charge of the send-off part at Shreveport.

Entries already received by Lake Littlejohn, Department of Commerce inspector who is in charge of registrations and names of persons expected to make the tour, include: Mr. and Mrs. Fritz Martin, Dan Leahy, Bob Emery, Cliff Stovall, Lake Littlejohn, Newt. Badgett, E. P. Jeter, Van Lear Leary, George Hearne, Eddie Hefley, Mr. and Mrs. Harlan Beene, Mr. and Mrs. Ted Young, Willis Young, Nat Pedro and Joe Messina, all of Shreveport; Miss Edna Gardner, S. E. Travis, Miss Augusta Walmsley, H. B. Chapman and B. F. Blackborn, all of New Orleans; Ed Apperson, Kenneth Elliott and T. Edney, all of Monroe; Mrs. Fanny Leonpacher, James Wells, Leo Bulliard, R. L. Briant and Leo J. Gros, all of Lafayette; Donald Kemper of Opelousas; Joe Heinen of Branch; C. E. Eppright and J. P. Fraim of Baton Rouge; Harry Watson of Lake Charles; T. B. Herndon of Mansfield; Reg Robbins and H. S. Jones of Fort Worth; Joe Schumate, C. A. "Buck" Rowe, Les Bowman, Hal Henning and Roy Harding, all of Dallas; Mr. and Mrs. Cliff Giblet of Oklahoma City; Mr. and Mrs. Jim Clark of Guthrie, Oklahoma; Mr. and Mrs. E. E. Paxton and Buck Carter of El Dorado, Arkansas; H. C. Miller, E. R. Lambert and Kenneth Garrett of Pine Bluff, Arkansas; Lt. Charlie Taylor, Lt. Holbrook, Capt. Phil Thomas, Lt. Ledbetter, Lt. W. D. Hobson and Lt. A. T. McMillan, Jr., all of the Arkansas National Guard at Little Rock; Seisel Franklin and J. C. Tankersley of Little Rock; Earl Ricks of Hot Springs, Arkansas, and Julian Womack and J. B. Nehls of Marshall, Texas.—*TOM ASHLEY.*

Springfield, Missouri

New Orders Swell Sales Volume
Hotchkiss Death Mourned

Arch McGregor, sportsman pilot, has just taken delivery on a new Aeronca, Deluxe, Continental powered, purchased through the St. Louis Flying Service, Inc., St. Louis, Mo. The Airport manager regrets, almost tearfully, that it is not Wasp powered, considering the time McGregor is putting in and considering the difference in gasoline consumption.

Vernon Brown, sportsman pilot, has ordered a new Deluxe Piper-Cub and expects delivery this month. He will take delivery in St. Louis from the St. Louis Flying Service, Inc., and has arranged with R. C. (Pop) Clayton to help him fly it in. Now there is little doubt it will take a tape measure to accurately get the width of Vernon's grin the day they bring the new baby home. Everyone is wishing Vernon the best of luck with the new ship. The J-5 Commandaire that he traded in on the Cub was a jinx and he was able to log very little time on it. Vernon deserves a lot of credit. He has stayed with the game when the sledding was toughest and has finally come out with flying colors.

Ben J. Harison, prominent sportsman, has sold his Wasp Travelair to Lester Plosser of far-away Alaska. The ship was immediately flown to Seattle, where it was dismantled and put aboard ship for the rest of the journey. Plosser has an extensive fur trading business and now has a total of ten ships used jointly for passenger and freight service. Also, so the story goes, he is the only owner of a Jersey cow, or any cow for that matter, that far north. Seems he likes milk and abhors the canned variety, so imported one to his own specifications. Keeps her in a barn surrounded with baled hay and warms her with an oil stove. Milking is done by an A. & E. so some of you mechanics can grin, temporarily, at least.

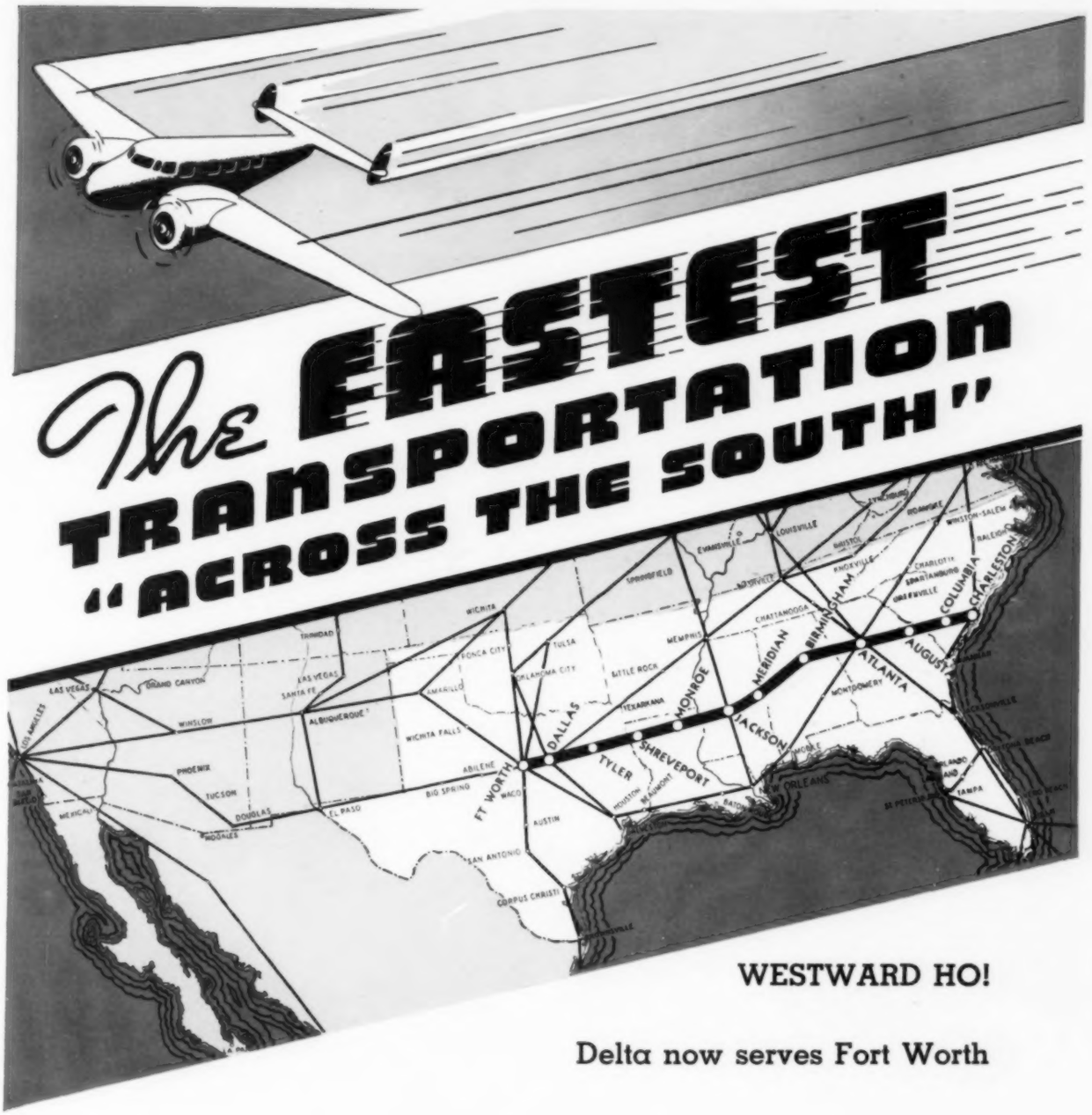
The repair shop is completely snowed under. With two recover jobs in progress and relicensing the Tri-Motor, the mechanics are in a spin.

All the airport personnel and operators mourn the loss of P. F. (Pop) Hotchkiss. Everybody knew him and liked him and we feel that aviation has lost a leader, a friend and a pioneer of the industry throughout the entire Southwest.

Pop Clayton made a trip with a news photographer over the Lake Taneycomo district and the White River region taking pictures of the flood. Field conditions were next to impossible when the trip was made but by taking off the "pants" the trip was made safely, in spite of the snow and the muddy field.

Flying activity is on the up and up even in the face of poor weather conditions. Next month Inspector Burns will have his hands full. Arch McGregor is going up for an LC, Riley Moffett and Jess Blevins for a private each and Vernon Brown will try for his solo pilot rating.

Traffic last month was the worst ever. The boys had a good chance to catch up on their reading, as that was about all there was to do besides the usual hangar "ground flying." We hope next month will be a little brighter what with spring in the air.—*KNOTE A. PILEIT.*



Delta Air Lines now offer trans-continental passengers a new and improved service across the heart of the South. . . . Through more direct connections at Fort Worth and Dallas with American Airlines and Braniff Airways, at Jackson with Chicago & Southern Air Lines and at Atlanta and Charleston with Eastern Air Lines, all principal cities of the nation are brought within a few hours of any point on "The Trans-Southern Route."

DELTA AIR LINES

THE TRANS-SOUTHERN ROUTE

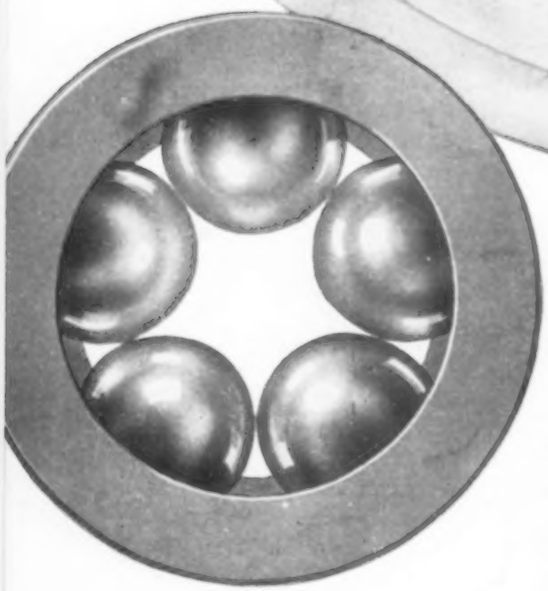
BALLS ARE MICRO-INSPECTED . . .
Arriving specially packed, the precision-made balls for Sperry bearings are scrutinized through high-powered lenses by trained inspectors, who search for flaws and check for surface contour. Tapers and raceways are included in this inspection.

TESTED BY PRECISION MACHINE . . .
Hardness testing is a Sperry feature, both for balls and for tapers and raceways. These polished surfaces must withstand continuous high-speed contact . . . Afterwards, the size and curvature are measured by accurate electro-mechanical gauges.

ARE *MATCHED* AND ASSEMBLED . . .
Out of these fine and uniform bearing balls, *matched sets* are selected by a Sperry machine that checks diameters to 1/100,000 of an inch. Each ball-set, assembled with outer raceway and inner taper, becomes a bearing for a Sperry instrument.

THEN "STETHOSCOPED" IN MOTION
Working in soundproofed, air-conditioned rooms, Sperry experts give rotor-bearings a thorough ear-test. With the rotor singing a melody of 10,000 revolutions a minute and up, any irregularity in note is caught and the bearing at once is rejected.

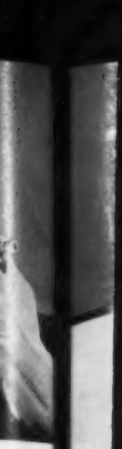
*R*e-measured to 1/100,000 of an inch and matched in sets like pearls . . . the balls for SPERRY GYRO BEARINGS



Typical of Sperry precision methods are those described above for obtaining in every instance the finest bearings for rotor units. The pilot's ability to guide his plane unerringly from point to point depends largely on the true and dependable functioning of the Gyropilot and other Gyro Instruments. Conscious of this responsibility, Sperry has developed over the years the highest standards of accurate workmanship and thorough inspection. Sperry's *exact* manufacturing methods in many cases are wholly its own and constitute industrial pioneering of the highest order. *Sperry Gyroscope Co., Inc., Brooklyn, N. Y.*

SPERRY

EXACTNESS IN EVERY PROCESS OF MANUFACTURE



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